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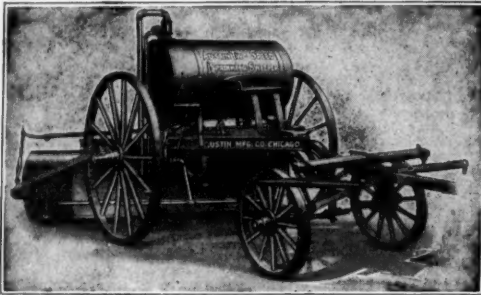
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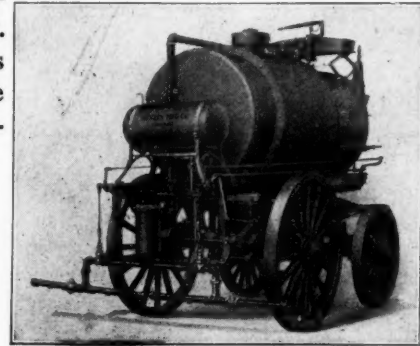
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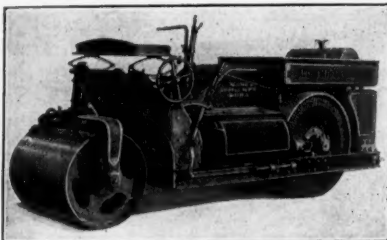
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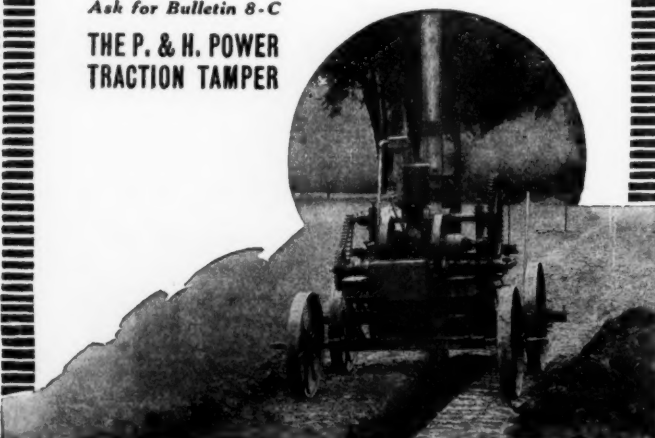
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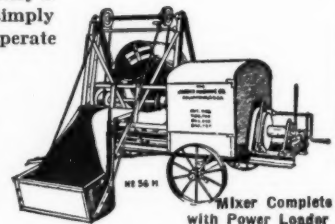
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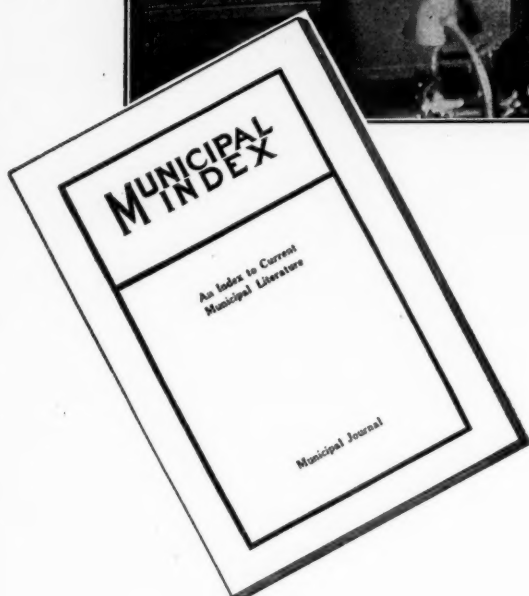
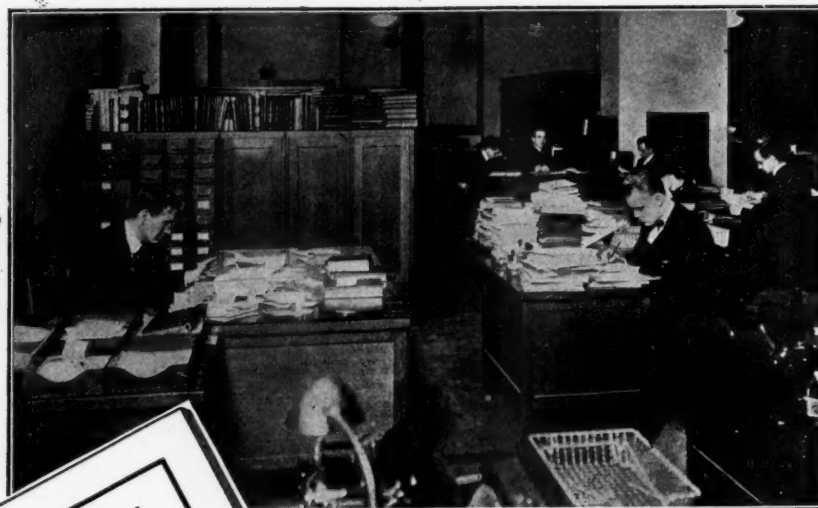
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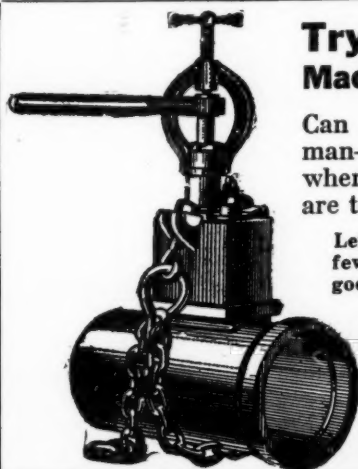
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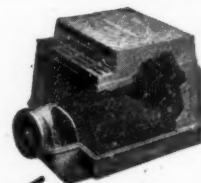
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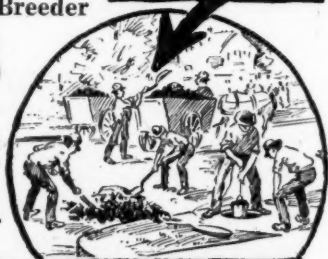


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Municipal Journal

Volume XLV.

NEW YORK, AUGUST 31, 1918

No. 9.

MUNICIPAL FUEL CONSERVATION

Practical Suggestions as to How Municipal Officials Can Help in Coal Conservation—Saving in Street Lighting, Pumping Water, Heating Public Buildings—Obtaining Co-operation of Private Concerns and Individuals.

This year the war requires at least 80,000,000 more tons of coal than were taken from the earth last year. An effort is being made to supply this additional amount by increasing the output to 2,100,000 tons a day, maintained continuously. During June and July this was just attained. With additional withdrawals of labor in connection with drafting two million more men, and with restrictions liable to be caused by weather conditions, labor trouble or transportation limitations, the rate may fall off, and the shortage be even greater than last year. The demands of war work must be met, and the effect of the shortage must be borne by conservation on the part of other consumers. Every ton saved will help in the war program. Most of the coal is used in cities, and city officials can do much toward securing conservation. The United States Fuel Administration, with the State Administrators, is entrusted with the power to make and enforce regulations; but the city, considered as a group of individual citizens, can promote or defeat the aims of the administration—can avert or precipitate a serious coal shortage. It is the purpose of this article to explain how, and to make plain that CITY OFFICIALS HAVE NO MORE URGENT DUTY AT THIS TIME THAN PROMOTING COAL CONSERVATION.

IMPORTANCE OF FUEL

This is a war of machines. Even in the van of the fighting, tanks by the thousand are playing a most important part, and just behind the lines coal-burning and gasoline-burning conveyances by the tens of thousands are used for transporting men and munitions. But it is at home, in the cities, that war machinery is playing its most important part, in making the munitions of war and the cars and ships for transporting them. And machinery means power to drive it. More than fifty million tons of coal will be needed for carrying out the shipping program. It takes eighty pounds of coal to manufacture a three-inch shell, and they are being turned out by the million. No matter how large the army raised, without ample power the war program must fall short and lose the "punch" that will put it across the Rhine.

Power means fuel to a large extent. Only about 16 per cent of the power used in the country is derived from hydraulic plants (these figures are exclusive of steam railroads), and of the remaining 84 per cent, 4 per cent is obtained by use of gas and oil, leaving 80 per cent of the power of the country to be furnished by use of coal, in addition to that used by steam locomotives and steamships, which totals almost as much. If all the

water power available throughout the country were used, it would furnish about three-fourths of the power now obtained by power plants from coal. But, although use of hydraulic power may be considerably increased, immediate increase to any great extent is impracticable.

The entire war program, therefore, is founded on fuel. Coal is its ultimate necessity. Given this, and all other materials and products are obtainable. Without it our army becomes impotent. In a sense "Food will win the war"; but if we relied on horses and sails to carry the food to the army, it would starve.

It has been found impossible to mine all the coal that is wanted. The deficiency must be obtained by conserving consumption in other lines. It is in the cities that most of the coal is used; it is in the cities, therefore, that most of the saving must be effected.

MOST OF THE COAL IS CONSUMED IN CITIES. IT IS IN AND BY THE CITIES THAT COAL CONSERVATION MUST BE EFFECTED.

There is a selfish side to this conservation—community selfishness. The available fuel is allotted by the Fuel Administrators so much to each state, and the state administrators determine how much each city shall have. Given this fixed amount, how can each city

use its allotment to the best advantage? Would it not be to the advantage of the mechanic to save two tons of coal in firing his home furnace, if this amount, turned over to the plant that employed him, would prevent its closing down and throwing him out of work? What does it profit a merchant to attract custom to his store by brilliant illumination of window and street, if the use of coal for this purpose is the cause of the closing down of industries from which his customers derive their income? Cities as a whole must to a certain extent decide how their allotments of coal can be used to the best advantage. The more they can persuade consumers to save, the more generally can the normal industries of the cities be continued.

But above all is the patriotic duty to save for the sake of the country's war program. Every ton so saved means more fuel for making war munitions or for carrying them to the armies in France.

HOW CITIES CAN SAVE.

Cities can save coal both directly and indirectly—directly in the boiler rooms of their own water works, lighting or other power plants, in street lighting and other uses of power; in schools and other public buildings, etc; and indirectly by their influence upon their citizens, either by ordinance or by persuasion. In both municipal and private use, coal can be saved by substituting wood, peat or other fuel or water power, by improved appliances for burning it, by improved methods

of firing, and by reduction in the use of power or heat so obtained.

Street Lighting.—Fuel used in street lighting may be saved by reducing the number and intensity of lighting units, by using lamps of higher efficiency, by decreasing the hours of lighting and by obtaining higher efficiency in the power plants by which the current is generated, or in the plants by which the gas is produced. Many cities have, during the past few years, installed lighting of unusual brilliancy in the business districts for display or advertising purposes. This should be eliminated during the period of coal stringency. In many installations the lights in such districts are on two circuits, one of which feeds lamps which provide ordinary illumination only, while the other furnishes current for the excess illumination. In such cases it is a simple matter to abandon for the time being the second circuit. Aside from this, it will be found practicable in many cities to use lamps of lower candle power or to light only a part of those provided, and still furnish sufficient illumination for the convenience and safety of the citizens.

This is hardly the time for any city to change its type of lamps, so that changing to types which are more efficient in the use of current can be done to only a small extent in most cases. However, there are a number of cities where the excess illumination above referred to has been furnished by lamps of high efficiency, and if a considerable percentage of these lamps are temporarily put out of service, such lamps could be used to replace less efficient ones in other parts of the city.

In the matter of reducing hours of illumination, it is possible that not much can be done where the number and candle power of lamps are reduced to the least practicable, since this number must generally be continued throughout the night as a police measure. It is possible, however, in a number of cities to somewhat reduce the hours of burning by turning on the lights a little later in the evening and extinguishing them a little earlier in the morning. Also the adoption of "moon-light" schedules instead of uniform illumination every night of the month would effect considerable saving where practicable. The use of lights by merchants for illuminating shop windows or signs should be discouraged or absolutely forbidden. It is estimated that 500,000 tons of coal a year are used to furnish current for such lighting.

The saving of fuel by using less per unit of light is probably possible in every case to some extent and in numerous instances to a considerable extent. Almost any power plant in the country can probably save in fuel by securing more effective firing or by adopting more efficient apparatus or both. Considerable changes in apparatus at this time, however, are not generally to be encouraged, and efforts must be confined largely to improving firing methods. It is not practicable to discuss at length at this time the technical details of such improvement, but these will be given in a future issue.

Water Works Officials:

Make sure that there is no slip in your pumps exceeding five per cent. and that your boiler room force fires efficiently. One-third of the coal used by pumping plants could be saved. Every ton of coal you save will produce shipping for carrying three tons of food and ammunition to our boys over there next year.

City officials should consider methods of encouraging improvement in firing. If the superintendents of the plants are not informed as to the most effective methods of firing, application to the State Fuel Administrator or the Federal Fuel Administration in Washington for information on the subject will be gladly responded to.

The plant should be furnished with scales for weighing coal and ashes, meters for measuring boiler-feed water, pyrometers, appliances for sampling and testing flue gases and all the other appliances required for determining the effectiveness with which the fuel is burned. Frequently the mere posting each week of the record of the previous week will stimulate the firemen to endeavor to exceed their best previous record, or one fireman to exceed the record of another. To still further stimulate such competition, prizes can be awarded weekly or monthly to the fireman having the best record, or a bonus may be given to each fireman for each unit by which he reduces the coal consumption below a given standard—say the average record prior to the establishing of the bonus system. Where the plant is a private one, those in charge may be urged to adopt similar methods for encouraging efficient firing.

Where there are two or more sources of power supply, choice should be made of that which consumes the least fuel per unit of light furnished. Where there is a choice between hydraulic power and steam power, the former should be chosen. Coal men have stated that by the installation of hydraulic plants the annual consumption of coal in St. Louis was reduced by nearly 1,500,000 tons. A number of cities are creating their own energy by coal-operated plants, when it would be possible to obtain current from privately owned hydraulic plants or steam plants operated more efficiently; in some cases the continuation of the municipal plant being dictated largely by the fear that critics would pronounce it a failure if current be purchased from the private company. No man conversant with such matters any longer hesitates to recommend in every case the purchase of power by municipal plants where it can be obtained in this way more cheaply than it can be manufactured, nor

Street Lighting Officials:

Cut out "White Way" lighting; every unnecessary light that burns lightens by that much the burden of the argument that our army is driving home. Discourage advertising illumination; it only advertises your merchants as slackers in fuel conservation.

does he fail to realize that it is no discredit to the municipal plant that it cannot generate power as cheaply as a company operating on a very much larger scale. Consequently, where a city can obtain hydraulically generated current instead of steam-generated, either from its own plant or by purchase, or whenever it can purchase steam-generated current that requires for its generation less coal per unit than its own plant demands, it is the duty of the city to make such change.

Water Works.—More than half of the water consumed in this country is pumped; and a very large percentage of such pumping is performed by steam power, the hydraulic plants being few, and those driven by internal combustion engines being generally small. Consequently about half of the water consumed by our cities represents coal burned, each gallon representing a certain amount of coal.

We have already frequently called attention to the

Cut out the slip in a pump and keep a ship on the jump.

waste of water that occurs in most cities and which is enormous in many. It is probably no exaggeration to say that half of the water that is pumped is not really needed—in fact, much of it is absolutely wasted. It would seem to be not impossible to reduce the water consumption of the country by 50 per cent if the cities could be as thoroughly convinced of its possibility and desirability as they are of the necessity of saving wheat, for instance. The city officials of the state of New York are now carrying on a campaign to secure a reduction in water consumption in order to reduce the amount of coal used in pumping such water, and we recommend similar campaigns by all cities and states in the Union.

A saving in fuel is possible also in the same way as suggested for electric power plants—by more efficient firing. The same suggestions apply to pumping plants as to the lighting plant. In fact, it is probable that even more saving is possible in that less efficient firemen are found in pumping plants than in lighting plants, in a

Police Officials:

Inspect every coal bin in your city and report the fuel hoarders.

Don't let prisoners loaf while women must labor; set them to work in a municipal wood yard. A cord of wood will release a ton of coal to help arrest the Kaiser in his mad career.

number of cities at least. In addition, there seems to be a considerably greater diversity between the efficiencies of pumps than those of lighting plants, figures collected from 25 plants showing variation in the amount of coal required between duties of 7,000,000 and 98,000,000 foot-pounds per 100 pounds of coal. It is of course unavoidable that small plants cannot secure as high efficiency as large ones, but we find plants of approximately the same size varying by as much as 500 per cent in the efficiency of their steam plants. Part of this is due to equipment so low in efficiency that there is no excuse for retaining it in service, but such probably cannot at this time be replaced by more efficient apparatus. We believe that without question, however, a large part of the difference in most cases is due largely to difference in efficiency in firing. While consumers are asked to reduce coal consumption by 30 or 40 per cent by eliminating waste, water officials should not overlook the possibility of themselves securing an equal reduction in coal consumption by increasing the efficiency of the boiler room practice.

In some cases the low efficiency is not due entirely to either boiler operation or inherent defects in the pumping machinery, but rather to neglect of the latter. Pumping with broken valves, worn cylinder rings and other defects that cause a slip of 25 per cent or more in operation is causing the burning of a considerable percentage of fuel unnecessarily. Not only fuel conservation, but also economy in operating expenses, demand that defective pumps be overhauled and put in good condition at once so as to eliminate such waste. No superintendent or board of commissioners should be satisfied with merely *supposing* that there is no excessive slip in their pumps, but they should see that an actual test is made for demonstrating conclusively that such slip does not exist.

Heating.—Terre Haute, Ind., saved fuel in January, 1918, by shortening the school day by cutting out recess periods and cutting down the noon period. Several

School Boards:

Close half your schools next winter and make the others do double or triple service. The coal so saved would go far toward helping to teach the Kaiser his lesson.

cities last winter saved fuel by heating only half the school buildings and making one building do the work of two, as by holding one grade from 8.30 to 1 and another from 1 to 5.30. This would probably enable a reduction of 30 or 40 per cent in the amount of coal used for heating schools. By using the assembly halls of school buildings in the evenings for purposes for which theatres and special halls are ordinarily used a still further saving can be effected.

City offices in many municipal buildings are used to only a small part of their capacity or for only an hour or two a day. In many cases there would be an actual improvement in service to the public if two-thirds of the offices be closed, except on special days, and the remainder be used jointly by several bureaus, each having a desk for the one clerk who frequently is its sole representative in the building during a large part of the time. In fact, reduction of man power may lead to one clerk representing two or more bureaus. This would greatly reduce the heating requirements of the city hall or other public building.

Heating churches for one day and one or two evenings a week is wasteful of fuel, both because the heat left at the end of the service is wasted and because heating churches with their very high ceilings is extravagant in use of fuel. The school buildings could be used for Sunday and evening services by burning but a fraction of the coal required for heating church buildings; separate rooms, or assembly halls in separate buildings, being allotted to the different church organizations. As an alternative, churches may be persuaded to combine temporarily, two or three holding union services in one building.

Wood may be used in place of coal in most sections of the country, especially in the smaller places. In many sections of the country there is a vast quantity of dead wood (as the blight-killed chestnut trees in the east), the supply in many communities being sufficient for all domestic purposes, some of which is being destroyed as waste. Last winter Governor Brough of Arkansas called attention of the people to the practice of promiscuous burning of wood in clearing new ground and urged its use as firewood. Municipal wood yards were established in North Carolina by the Federal Fuel Administration. Convicts were used in some places for collecting wood for municipal yards. City officials could do much by operating municipal wood yards in this way and encouraging the citizens to burn wood. In Tennessee war fuel companies have been organized, one or two to a county, each with a local manager, who superintends the cutting and selling of wood.

Wood of any kind can be utilized to best advantage in a dwelling or apartment house heating plant by burning it in combination with coal. It is advisable to throw wood blocks onto the fire when the fire box is comparatively empty and cover them with coal. The check damper in the smoke pipe should be kept open wider than when burning coal alone, as less chimney draft is needed. When wood is used alone in a heater intended for coal, it is recommended that the grate be

Heed the Fuel Administration advisor and help our boys make it hot for the Kaiser.

Every shovel full of coal you can save will help our boys make it hot for the Kaiser.
Give less money to the coal dealer—more for Liberty Bonds.

partly covered with sheet iron or fire brick to reduce the draft.

Hickory, oak, beech, hard maple, birch, cherry, ash, long-leaf pine, locust and similar species have high fuel value in comparison with other woods. One cord of these, dry, is about equal in fuel value to one ton of domestic coal.

The ordering of "heatless days," during which most buildings in the city other than residences are to be unoccupied and heated only sufficiently to prevent freezing of pipes, is an extreme remedy which should be made unnecessary by the general adoption of less drastic ones.

"Daylight saving" hours this summer have made possible more hours of labor, but have resulted in very little saving of fuel; but if continued during the winter, a saving of light-creating fuel would be effected.

RUNNING HOUSEHOLD HEATING PLANTS.

Perhaps most promising for the saving of domestic fuel is the instruction of the individual householders in proper operation of their furnaces. It is believed that 25 per cent of the domestic consumption could be saved by proper firing. It is suggested that this Fall public meetings be held in every municipality, at which municipal officials or civic organizations provide capable instructors in the operation of furnaces and ranges; that a working furnace and range for demonstration of proper methods be placed in the window of a prominent store on the main street; that instructions be published in the local papers, and every other means that suggest themselves be adopted to induce and educate the householders to conserve in fuel.

Hoarding of domestic fuel was practiced to a greater or less extent last year. Some cellars were found this spring to contain enough fuel to heat the house for another winter. Cities that have not already done so should inspect every cellar and out-building in the town (the police have been used for this purpose in many cities) and secure a record of the amount of coal now stored in each one. The city fuel administrator should compare this with the orders sent to the coal dealers, and countermand or reduce such orders where the amount of coal on hand warrants it.

Instructions issued by the U. S. Fuel Administration for running household heaters are given below. It would be well if city officials would request all their local papers to run these at intervals; first and at once calling attention to the desirability of seeing that the furnaces are put in order and cleaned out.

The Fuel Administration's first charge to the householder is cleanliness. To get the most heat from the least amount of coal his heater must be clean. One one-hundredth inch of soot has the same power to resist heat as ten inches of iron. The soldier in the trenches endures filth that he may cleanse the world of German bestiality. The American householder will turn chimney sweep, unpleasant though his task may be, that he too may know the glory of serving against the Hun.

The Fuel Administration asks the head of each household to care for his heater himself this winter; to learn how to run his heater intelligently; how to get from every ton of coal every unit of heat it can supply to his family.

Give your heater its first cleaning of the season in the late summer and have it put in thorough repair. Broken parts mean loss of heat. The fire-box should be tight. Trivial cracks may be cemented.

If the landlord refuses to make adequate repairs, the householder should report the matter promptly to his local or State Fuel Administrator.

Following are fuel savers and comfort suggestions, assembled briefly in the form of practical rules for operating the various types of household heating systems:

GENERAL RULES, OR, HIGH POINTS IN MANAGEMENT. Applicable Alike to Hot-Air Furnaces, Steam and Hot-Water Plants and Kitchen Ranges.

1. Be sure there is a check draft-damper in the smoke-pipe, besides the turn-damper. This check draft-damper is as important in controlling the rate at which the fire burns as is the throttle of an engine. Open it to check the fire. Close it to make the fire burn more rapidly. Experiment with it in the daily regulation of your fire. Make it do its work. The coaling-door was not put on the heater to check the draft. If you cannot check the fire without opening the coaling-door, you need proper dampers.

2. The turn-damper should fit the smoke-pipe loosely and must never be entirely closed. With the average plant it may be kept partly closed most of the time in

"Food will win the war," but not if it stays on the farm, nor if horses and sails are relied on to get it to the army. A ton of coal is burned in transporting three tons of food to our boys in France. A pound of coal saved every day will keep one soldier's food going to him.

mild weather, but during severe weather it usually needs to be opened wide.

3. Make use of the lift or slide-damper in the coaling-door only to let oxygen in to consume gases, if you are using soft or bituminous coal, after fresh fuel has been added.

4. Just enough draft and that from below, checking the draft by letting more air into the smoke-pipe is one of the best general rules. This furnishes oxygen from below, necessary for the consumption of the coal-gases, and at the same time gives time for them to be consumed before being drawn up the chimney. This method also avoids escape of coal-gas into the cellar. To make the fire burn more rapidly, do not open the whole ash-pit door, but only the draft-damper in the ash-pit door. Opening the whole ash-pit supplies air to the fire faster than it is needed for combustion. The air is heated, passes out the chimney and is so much heat wasted.

5. All heat pipes in the cellar should be thoroughly and completely wrapped with asbestos or similar covering to prevent loss of radiation.

6. Grates should be cared for properly. A short, quick stroke of the shaker handle will sift the ashes through the grates. Leave grates in flat position when through shaking. Clean ash-pit daily, to prevent damage to grates. In severe weather grates should be shaken until a glow appears in ash-pit. In moderate weather a bed of ashes should be carried on top of the grates.

7. Avoid poking and slicing fire-bed. It causes draft holes and clinkers.

8. Never shake a fire that is low until you have put on a little fresh coal and given it time to ignite. A thin fire wastes coal. Disturb the fire as little as possible.

9. Storm-windows and storm-doors, weather-strips and such protective devices are economical of heat.

10. Keep the temperature of sitting-rooms at sixty-eight degrees or less. If there are invalids, old folk or very little children in the family, the temperature may be higher. Rooms where you do not sit are more comfortable if much cooler, as a rule, providing the air is kept a little moist. Get a thermometer—a good one. Use it inside, not hanging outdoors.

11. It is wasteful to allow the temperature to drop way down at night. It takes twice as much coal to heat it up again next morning.

12. Turn off the heat in unused rooms whenever possible. Bedrooms should be kept much cooler than living rooms. Don't try to heat all the rooms all the time. If you have a hot-water system, make heavy radiator clip-

Skip-stop—keep the Hun on the hop.

There are no "White Ways" in "No Man's Land."

covers and put them over radiators when not in use. This will prevent freezing.

13. Always keep two pans or open-top jars of fresh water on radiators or in front of registers to keep the air in the home moist.

14. Study the Specific Rules applying to the system of heating your house.

Hot-Air Furnaces—Specific Rules.

1. Provide cold-air drops from upper floors so as to insure a return circulation from all rooms to the air intake of the furnace.

2. Regulate the window of the cold-air box so as to avoid too great a current of outside air, especially on very cold days.

3. Always keep the water container in the air-jacket filled with clean water. Moist air heats much more readily than dry air, and is better for health, as well as more comfortable.

4. It is advisable to keep a jar of water near one of the first-floor registers that sends out the most heat. Change the water frequently, preferably every day.

5. Hot-air pipes should have a good pitch upward from the furnace, and should be of sufficient diameter. They should also be wrapped with sheet asbestos. A separate pipe for each room with a turn damper near the furnace is a good rule. Each pipe should be labeled, so that certain rooms can be shut off at the furnace when desired.

6. Be sure the fire-box is gas-tight. All cracks must be thoroughly cemented or a new section put in before winter sets in. Otherwise coal-gas will escape into the air-jacket and be carried up directly to the rooms.

Study carefully the General Rules pertaining to other types of heating-plants as well as your own. Notice the "clean-out" door and remember why it is there.

Steam Heaters—Specific Rules.

1. The water in the boiler should be completely changed at least as often as every spring and every autumn. Draw a bucketful of dirty water from the bottom at least twice a week and each time replenish with fresh water from the supply-pipe. Cleanliness of water in the boiler is of prime importance.

2. Look at the glass water-gauge whenever you attend to the fire. Turn the exhaust-cocks above and below the gauge occasionally to make sure that it is not clogged or the openings to it from the boiler closed up. They must be kept open.

3. The level of the top of the water must always show at some point along the gauge. Its height will vary with the temperature of the water; but if it rises above the top of the glass there is too much water in the boiler and some must be drawn off; and if it sinks below the bottom of the glass some more water must be let into the boiler.

Don't fool yourself; the war will not end this year, nor will coal be abundant the day after peace is signed. It takes as much fuel to turn swords into plowshares as it does to manufacture swords. And we must restore our fuel reserves, which have been entirely exhausted. Coal conservation must be continued for months yet, no matter what happens.

4. Be sure that the exhaust-valve of each radiator works. Sometimes these valves need cleaning with a pin or soaking in kerosene. If in doubt about one of them unscrew it from the radiator when the fire is low and there is no steam-pressure, or else after turning off the radiator. If you can blow through it, it is all right. If not it must be cleaned until you can. Don't fail to replace it. It is advisable to have an extra valve to replace any one that is temporarily out of order.

5. Don't fail to study the General Rules, applicable to all heating-plants, and also to keep the boiler-flues clean.

Hot-Water Plants—Specific Rules.

1. All the water should be emptied from the plant and clean water put in at least as often as every spring and every autumn.

2. When the first fire of the season is built, as the water gets heated, take the radiator key and open up the exhaust-valve of each radiator in turn until all the air remaining in each radiator is allowed to escape. Repeat this operation occasionally to make sure there is no air interfering with free circulation of the water.

3. Always be sure that water shows in the glass gauge of the exhaust tank, which is usually located in the top story of the house above the level of all radiators.

4. Be sure the boiler is covered with asbestos, as well as the pipes in the cellar.

5. Study carefully the General Rules relating to all types of plants. Keep heating surfaces of the boiler well cleaned.

The Kitchen Range.

1. Avoid too much shaking. Live coals in the ash-pit mean wasted fuel. Clean ash-pit daily to prevent damage to grates.

2. Clean the entire stove well inside, on top of the oven and below the oven, frequently and thoroughly.

3. Stoke frequently and in small amounts.

4. Never shake a low fire until a little fresh coal has been added and given time to ignite.

5. Keep a pan or kettle of water always on the kitchen stove. Moist air makes for comfort, health, beauty and economy.

6. Read the General Rules applying to all household coal-burners.

Other Possibilities.—Aside from the suggestions already given, which are of very general application, there are a number of methods available to some cities for further conservation of coal. For instance, the application of the skip-stop system to street railways and the regulation of car heating and lighting may be utilized for this purpose. Proprietors of large office buildings or other plants that operate and own power plants for lighting the buildings, running elevators, etc., should be encouraged to obtain power instead from power plants serving the city at large as a temporary war measure, such power plants being at the same time urged to offer rates and conditions that will facilitate such temporary change. (Incidentally, it may be said that in a number of cases where this has been done, both private owners and power plants have expressed themselves as so satisfied with the temporary arrangement as to have decided to make it permanent.) Where there are several power systems in a city or district, they should be induced by the Board of Trade or other city officials who have influence with them to connect their power lines and combine in a study of power loads and plant efficiency so as to work out a system of operation and mutual interchange of power that will secure the minimum fuel consumption. For instance, a company obtaining all its power hydraulically may, during part of the time, have water flowing over the dam which it could utilize at practically no additional expense for furnishing power to another company operating in the same field and using steam power; while a steam plant maintained by the water-power company for carrying peak loads can be closed down permanently and such loads be carried by current furnished by the steam-power company; each of which would thus secure a saving in fuel.

The Federal Fuel Administration has restricted the amount of fuel to be used by certain industries, and city officials would be doing a patriotic service to see that in their community these regulations are satisfactorily observed.

An over-full coal bin in one house means freezing in another. Get after the fuel hoarders and make them disgorge. See that every citizen gets a square deal next winter.

One B. t. u. in a munition plant is worth more than a thousand under the collar.

WIDTH OF ROADWAY AND CORNER CUT-OFF.

Plans Made by City Plan Commission of Cleveland for Extension of Carnegie Avenue—Increasing Corner Radii and Angle of Vision.

By ROBERT H. WHITTEN*.

Cleveland is extending Carnegie Avenue to serve as a relieving street for Euclid Ave. In carrying through this important project in war times the relief of intolerable traffic congestion and attendant danger to life and property is the controlling motive. The plan of improvement as worked out by the City Plan Commission and approved by the City Administration provides for a 55-foot roadway. This allows ample room for four lines of fast moving vehicles in addition to the space required for vehicles standing at the curb. Where vehicles move two abreast in each direction at a speed of 20 or more miles an hour an allowance of 10 feet per traffic unit is not excessive. A greater clearance is needed between vehicles passing each other while moving in the same direction than for vehicles passing each other while moving in opposite directions. In passing a vehicle moving in the same direction there is always danger that the vehicle being passed may swerve a little to the left in order to avoid a bad spot in the pavement or other obstacle. An allowance of but 8 or 9 feet per traffic unit is not adequate where it is necessary to provide for more than one line of vehicles in each direction.

The allowance of 10 feet per moving unit also works out better at the important intersections where aisles of safety or an additional unit for vehicles stopping to make the left hand turn must be provided. Near such intersections the fast moving vehicles necessarily slow down so that an allowance of 8 or even 7 feet per traffic unit may be adequate. The surplus width near such inter-

sections produced by the 10-foot unit can be used to better safeguard the pedestrian, to better provide for the troublesome left hand turn and to provide a space for the traffic officer and signal. (See Diagram No. 1.)

The plan of improvement also provides for street corner cut-offs so as to secure a greater turning radius for vehicles and an increased angle of vision. The greater the turning radius at a street intersection, the smaller the danger of collision through swinging over on the left hand side of the narrow cross street. Even large trucks can turn on a 30-foot radius, but they seldom do so. Accidents are frequent from trucks and other vehicles swinging too far to the left in rounding corners. Without a corner cut-off the curbs could be rounded on an 18-foot radius without encroaching on the normal sidewalk space. By cutting back the corners at the building line the curbs can easily be rounded on a 25-foot radius. This gives a normal turning radius for a vehicle starting from a point $7\frac{1}{2}$ feet out from the curb of 45 feet. (See Diagram No. 2.)

The wider the angle of vision at a traffic intersection the greater the chance to stop in time to avoid collision. The wider the angle of vision, therefore, the greater the speed that can be safely maintained in approaching an intersection. This wider angle of vision can be secured either by widening the street or by cutting back the corners. Where increased street width is not needed the cutting back of the corners is by far the more economical method of securing a wider angle of vision. (See Diagram No. 3.)

That a 5 or 10-foot cut-off does not normally decrease the rental value of a retail store, office or apartment building is shown by the number of such buildings erected without legal requirement. Such a cut-off normally furnishes the most economical and desirable location for the entrance to a store and a good location for display windows on both the first and second floors. Windows located on this cut-off have the advantage of looking

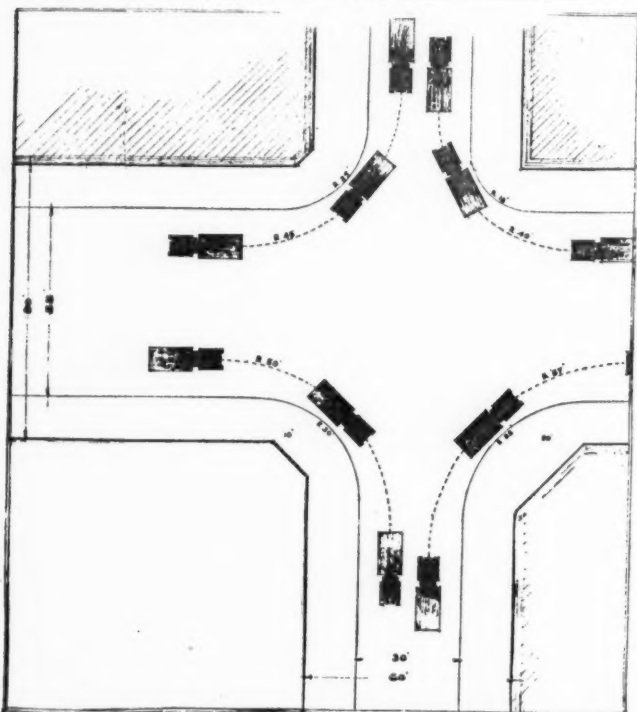


DIAGRAM NO. 2.—INCREASING CORNER RADIUS.

The greater the turning radius at a street intersection the smaller the danger of collision through swinging over on the left hand side of the narrow cross street. Even large trucks can turn on a 30-foot radius, but they seldom do so. In the above illustration the advantage of the larger turning radius made possible by even a 5-foot cut-off is evident.

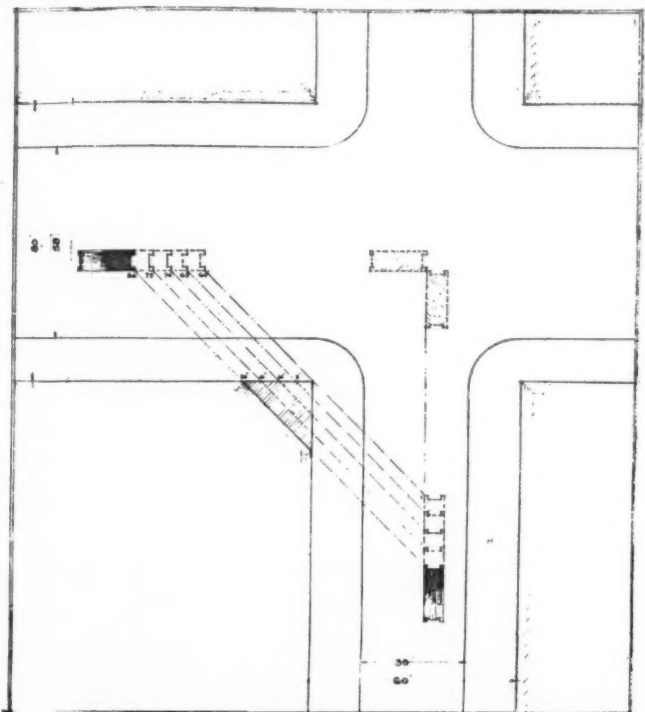


DIAGRAM NO. 3.—WIDENING THE ANGLE OF VISION.

The wider the angle of vision at a traffic intersection the greater the chance to stop in time to avoid collision. This widened angle of vision can be secured either by widening the street or by cutting back the corners. Where increased traffic capacity is not needed, the cutting back of the corners is by far the more economical method of securing a wider angle of vision.

*City Plan Advisor, Cleveland City Plan Commission.

down two streets. In addition to their business value they are, therefore, in demand for either office or apartment purposes.

WASTE DISPOSAL IN CHICAGO.

The city of Chicago in 1917 collected and disposed of 100,146 tons of garbage, which was 25.4 per cent less than the amount in 1916. From this garbage it obtained 4,023,480 pounds of grease, most of which was sold at an average of 6.88c. per pound, yielding \$273,573. The amount of tannage produced was 22,489 tons, of which 13,656 tons were sold at \$4.16 per ton and 8,729 tons were sold at \$10.27 per ton. In addition to these returns, the city obtained for rags, tin cans, and miscellaneous scraps sorted out from the garbage a total of \$6,082.

Altogether, the gross receipts from products of the municipal reduction plant totaled \$426,379, while the operating costs (not including any overhead expenses) amounted to \$456,523, giving a net loss of \$30,145. This is a considerable reduction, however, from 1916 when the loss was nearly \$76,000. During the latter part of the year the plant showed a profit on the manufacturing cost, the efforts of the Bureau of Waste Disposal being centered on a reduction of operating expenses. During the early part of the year a considerable amount of labor was used in milling tannage that had been stored on a prairie, which resulted in increased operation costs for salaries and wages. The operating of the new mill house during eight months of the year also required an excessive amount of labor. These conditions, together with the high cost of supplies and repairs, considerably increased the operating costs.

The rate of \$4.16 per ton at which the tannage was sold was in accordance with a contract that expired on July 31st, and a few days later a new contract was entered into by which \$10.27 per ton was to be received during the next twelve months. Similarly, a contract for garbage grease which yielded 7.34c. per pound expired on December 31st and a new contract was let by which the city receives this year 11.57c. per pound.

During the year the Bureau made a number of additions to the plant, including four Atlas dryers, with a fan blower system for the same, together with the motors, conveyors, elevators, and accessories necessary to operate them; built a new extractor building and installed in it electric light and power lines, percolators and evaporators and naphtha condenser piping in concrete tanks; completed all masonry work and installed electric light and power lines in the new mill building and completed the installation of a garbage tailing screen and conveyor therein; completed foundations and structural steel for a new boiler house and installed an ash and coal conveyor therein; erected a 150-ton track scale, installed two new switchboard panels in the old power house and substituted two 150 kw transformers for six 50-kw transformers, erected a garbage pressing machine weighing about 105 tons, constructed about 600 feet of 8-inch and 10-inch button conveyors, constructed a concrete retaining wall to support a switch track, and graded 14,000 square feet of dock area to provide space for storing coal.

The decrease in amount of garbage received at the plant continued throughout every month of the year, although it reached its maximum in May, when the amount was 73.2 per cent less than during the corre-

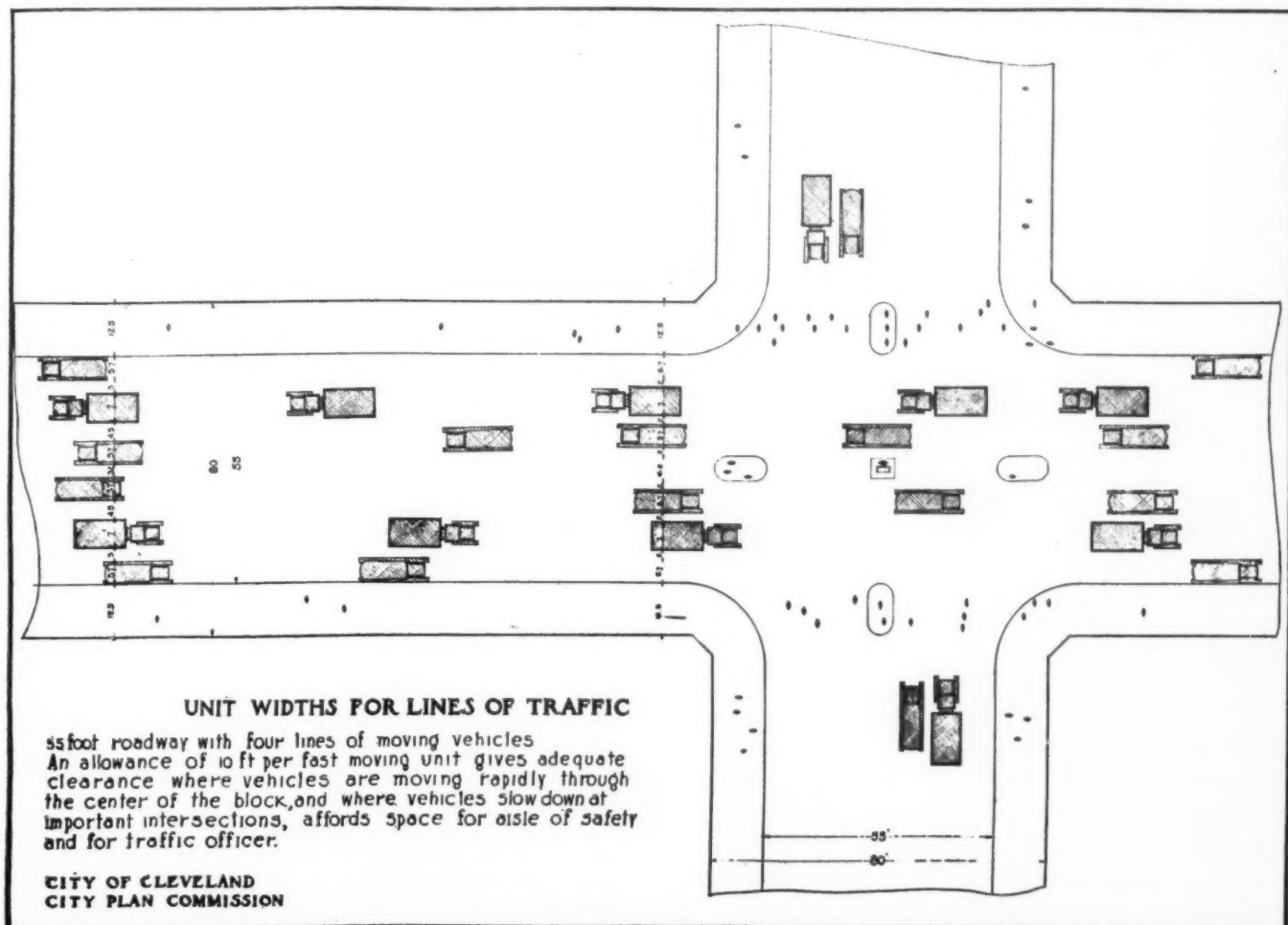


DIAGRAM NO. 1.—ILLUSTRATION OF UNIT WIDTHS FOR LINES OF TRAFFIC.

sponding month of 1918. From then on the percentage of decrease became smaller until in November the amount was 7.2 per cent less than during November 1916. No reason is stated for the small amount of garbage received in May, but as it was only about 33% of the average for the year and a similar percentage of the amount collected during the following month, there was apparently some reason other than failure of the city to produce it.

During the year, in addition to the grease and tarrage produced, there were recovered 549 tons of rags, 594 tons of tin cans and 93.8 tons of miscellaneous scrap. The total receipts for the year were \$273,573 for grease, \$146,724 for tarrage, \$4,337 for rags, \$1,301 for tin cans and \$443 for miscellaneous materials. The expenditures for the year included \$259,429 for labor and salaries, \$77,117 for fuel oil, \$23,553 for coal, \$21,553 for power and light, and \$74,872 for supplies and repairs. The unit monthly average cost per ton of raw garbage, including all of the above items, varied from a minimum of \$3.348 to a maximum of \$7.853, averaging \$5.027. Some of the tin cans sold at \$1, others at \$2 and still others at \$2.50. Part of the rags brought \$4.50 per ton and others \$9.00 per ton. Scrap metal brought \$6.00, \$6.50 and \$10.00 per ton for the various grades, while scrap brass brought \$12.00 per hundred.

FEDERAL APPROVAL OF HIGHWAY CONSTRUCTION.

Announcement by the United States Highways Council of Its Policy in Approving Highway Work—Preparing a 1919 Program.

As stated in our issue of June 29, "all functions of Government agencies relating to streets and highways hereafter are to be coordinated in a body called the United States Highways Council, composed of one representative each from the War Department, the Department of Agriculture, the United States Railroad Administration, the War Industries Board and the Fuel Administration." This council has just made public its regulations governing highway and street work during the period of the war, to take effect September 10. These require Federal approval for practically all highway construction. The announcement of the council is as follows:

1. All proposed highway, street, culvert and bridge construction, reconstruction, and maintenance involving: (a) the issuance of bonds; (b) the use of rail or water transportation; (c) the use of coal or oil as fuel; or, (d) the use of cement, brick, asphalt, oil, tar, crushed stone, or steel, (also sand and gravel where shortage exists) as highway material, should first be submitted for approval to the United States Highways Council through the appropriate State highway department. Forms have been prepared for this purpose and a supply placed with each State highway department. No manufacturer will furnish any road building material until the project has been approved by the United States Highways Council.

2. The council again urges that new highway and street construction be confined to the most essential needs. If this is done there will be a far greater probability that the work thus selected can be promptly and effectively carried through to completion than if an amount far in excess of the available facilities were to be undertaken.

The Council, in passing upon the projects which come before it, will give first consideration to maintenance with a view to conserving all the highways already completed if possible.

Reconstruction will be favorably considered by the Council only where it is clearly established that maintenance is no longer possible except at prohibitive cost.

New construction will be given consideration by the Council in the following relative order of importance:

- (1) Highways and streets of military value;
- (2) Highways and streets of national economic value;
- (3) Unfinished contracts involving contractual obligations (incurred prior to April 5, 1918, where bond issue is involved) which may not be disturbed without serious consequences;
- (4) Streets and highways which, although not of national economic importance, are of such extreme local importance or the construction of which has progressed to such a point as to cause serious hardship if their construction or completion is postponed.

The Council is hopeful that the selective consideration of new highway and street construction by the township, county, and municipal officials and in turn by the State highway departments will so materially eliminate the less essential projects as to make it possible for the Council to render active aid on the projects it approves. The aid contemplated will be in the form of such action by the other government agencies involved as will remove obstacles to the speedy completion of the projects.

3. By way of definition of highways of military and national economic value, the Council offers the following:

(a) A highway of military value is one used regularly for the transportation of military supplies in considerable quantity; for the movement, as an established practice, of army truck trains; or which is essential to the efficient operation of a military cantonment, post, or plant.

(b) A highway of national economic value is one which serves or will serve, if properly improved, directly to promote the welfare of the nation and not merely the local welfare. As examples it may be stated that in this class would be placed: (1) Highways which, although not directly used for military purposes, yet serve to help win the war by greatly facilitating the output or movement of war munitions and supplies; (2) highways which can clearly be shown to relieve congestion on railroad lines in a territory which is actually in need of such relief; (3) highways which give access to or promote the output of natural products needed by the nation to a marked degree; (4) highways which further housing operations, undertaken by the Federal Government or by other agencies with the approval of the Federal Government, would justify at times this designation.

4. State highway departments are requested to give most careful consideration to each application on its merits in the light of the policy announced by the Council and to exercise the power of disapproval freely. Only the projects approved by the State highway department will be considered by the Council unless the department itself is in doubt and wishes a decision in the nature of a precedent.

5. The Council will shortly begin, in co-operation with the Office of Public Roads of the Department of Agriculture, and the State highway departments of the several States, the preparation of a program of road and street construction, reconstruction and maintenance throughout the United States for the working season of 1919. The purpose of the program is to obtain an approximation of the character and amount of street and highway work deemed essential in 1919, together with an approximation of the amount and character of financing required; the amount and character of the various materials entering into the work; the extent to which rail and water transportation will be involved, and the probable demands upon the labor supply. The preparation of the program in each state will be directed by the State highway department, and will cover all state, county, township, and municipal highway and street work.

Accompanying the announcement are form for application for approval of projects, to be filled out and signed by public officials and filed with the State highway departments, which then considers it and, if it approves it, transmits it to the Council. The Council and the respective government agencies interested then consider it and advise the applicant as to the action taken.

The State highway departments are also to submit, on other forms, a program of highway and street work proposed for 1919, made up in four groups—state, county, town, township or district, and municipality. For each of these the proposed work is to be classified as construction, reconstruction and maintenance.

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THE HOME FIRING LINE.

It has been said so often as to become almost wearisome that this war will be won or lost by the people who remain on this side of the Atlantic; and yet the idea must be repeated again and again and in all its variations, because of its tremendous importance and the difficulty of the average citizen to really appreciate it.

The universal duty imposed on every citizen is thrift and economy. The results aimed at are two—that money that would be spent for non-essentials may be placed at the disposal of the Government for the purpose of war munitions, and that there may be available for the manufacture and transportation of such munitions the maximum possible of materials and power.

As to the second, the output of the country is limited only by the amount of power available, both mechanical and man power, for fortunately the country's store of materials and arable land could not possibly be exhausted during the period of this war. But the man power is unalterably limited, and with an additional two or three million men withdrawn next year from labor to the army in the field, the supply will be still further diminished most appreciably.

The great source of power in this country is coal, about 80 per cent of it being generated by this fuel. The coal output is limited by railroad capacity, and it is doubtful if it can be increased above the present rate. But the demands for it are constantly increasing. Every three-inch sheel that is fired in Europe represents 80 pounds of coal used for its manufacture in this country—say three scuttles saved from the kitchen range, or eight shovels full in the boiler room. Coal is the basic necessity in manufacturing munitions, and the amount needed for that purpose must be employed. What remains will be available for other purposes. It will not be, cannot be, abundantly ample, but it can be made to do if used wisely and economically.

It is unquestionable that there is no line of saving more important than saving in fuel. Let all municipal officials continuously and forcibly impress this upon their citizens and especially upon the municipal employees in water works, electric lighting and other power plants. Let every man who runs a furnace bear con-

stantly in mind that every time he saves ten shovels full of coal in firing it he furnishes a shell by which to make it hotter for the Kaiser. Let every fireman realize that if he saves five tons of coal this winter, that coal will construct a ton of shipping for carrying men and munitions to the front.

The firing line in the cellars and boiler plants of this country must support the firing line along the Rhine.

PREPARE NEXT SEASON'S HIGHWAY PROGRAM.

Cities or other municipalities that wish to carry through any highway work next year should plan such work at once. We have called attention annually to the desirability of planning municipal work well in advance, but such planning would appear to be essential this fall. Unless planned now it cannot be put through at all.

The reason is explained elsewhere in this issue. Next season Federal approval will be required for practically all highway work, city, county or state. In order to provide for carrying out the most necessary work, furnishing the necessary material and transportation for it and raising the funds to pay for it, the Highway Council will prepare at an early date a program covering the entire country. As a basis of this program it will use the recommendations of the state highway departments, which recommendations are in turn to be based upon applications by local authorities. And these applications should be supported by explanations of the necessity of each case.

It is necessary, therefore, that the local program be prepared in definite shape sufficiently far in advance to permit consideration of it first by the state highway department and then by the Highways Council, with opportunity in each case for referring the matter back to the applicant for further information. All this will take time. It is to be presumed that once the tentative program is made out, additions to it can be obtained only with considerable trouble and for exceptionally urgent reasons. It therefore behooves all cities to present their requests as soon as possible.

The Council will give precedence to maintenance of existing highways, reconstruction being considered only for those cases where it is clearly established that maintenance is no longer possible except at prohibitive cost. As to new constructions, these will be considered in the following order: roads of military value; roads of national economic value; unfinished contracts; roads of extreme local importance, or those partially constructed, the completion of which is necessary to avert serious hardship.

In applying for permission to construct, municipal officials should classify each piece of work in accordance with the above, setting forth the arguments in favor of the work. Even where the continuation or carrying out of existing contracts is involved, the municipal officials rather than the contractors should sign the application, as the Council desires that such officials assume active responsibility in the matter.

It does not appear that the Council possesses any power to punish municipalities which endeavor to conduct highway work not approved by it, but the fact that the Railroad and Fuel Administrations are represented on the board may be taken as indications that fuel and transportation of materials for work not approved by the Council will be difficult to obtain, and moreover "no manufacturer will furnish any road-building material until the project has been approved." Therefore, it would

appear to be practically impossible for a municipality next year to carry out any highway maintenance or construction without the approval of the Council, except such as requires only local materials such as gravel or broken stone. It is not believed, however, that any municipalities will endeavor to unpatriotically elude the control of the Council even for such work, but we do not question that every authority in charge of highways throughout the country will regulate its operations in the future by the requests or orders of the Highways Council.

MILWAUKEE RAISES EMPLOYEES' SALARIES.

The employees of Milwaukee receiving the lower salaries have been insisting to Council that they do not receive a living wage, and the matter was referred to the Civil Service Commission, which suggested to Council three plans:

1. A \$10 monthly horizontal increase for all employees receiving less than \$1,800 a year.
2. Same as No. 1 but with \$20 increase.
3. The McAdoo plan for railroad employees known as Order No. 27, to reach all employees receiving \$1,800 a year or under.

The Commission favored the last because it attempted to meet the situation in a scientific way, which the other did not. But the Common Council objected to it because of the large cost and adopted plan No. 1 with \$1,500 substituted for \$1,800. The Council wished to make the increase effective August 1st, but the City Attorney reported that revision of salaries could be made legally only at budget time, which difficulty was met by the agreement to add \$60 to the January payroll for each salary affected and \$10 a month afterward, which is thought to offer an inducement well worth remaining in the service for. The State Legislature will be asked to legalize the plan in order to forestall any trouble.

WATER WORKS OPERATION

Selection of Material for Service Pipe—Advantages and Disadvantages of Galvanized, Lead, Lead-Lined and Cement-Lined Pipes.

Service connections generally give more trouble to the superintendent than any other part of the water works system. This trouble is of two kinds, one being the deterioration of the quality of the water, the other consisting of leaks and stoppages. To minimize these troubles, the selection and laying of service pipes and the appurtenances combined with them should receive the most careful consideration of the superintendent. A little trouble and expense incurred at the beginning may save much greater trouble and expense a few years later.

A service pipe should be of such material and size and so laid that it will not so affect the water passing through it as to make it injurious to the consumers, nor should it give to the water an objectionable appearance, taste or odor; it should have sufficient capacity for the demands made upon it, and should maintain this capacity indefinitely; it should have sufficient strength to resist any pressure likely to be brought upon it; it should have a long life under the conditions of soil, water, etc., to which it will be subjected; it should be easy to lay with the class of help available; and it should be inexpensive.

Of all of these requirements, the last is the least important; for the actual cost of the material in a service connection is a comparatively small item when compared with the labor and other costs of constructing it and the cost of maintenance during the twenty-five to fifty

years of life which it should have. This is especially the case where the pipe is laid in streets that are likely to be paved with improved surfaces on concrete foundations, since the cost of digging through such pavement and replacing it in order to make one repair or renewal of a leaky service pipe may be several times the cost of the pipe and many times the cost of the difference between a poor pipe and a good one.

* In order that the pipe should not so affect the water as to make it either injurious to health or objectionable, it should be of a material which, when kept continuously in contact with the water to be provided through it, either quiescent or in motion, will not yield to the water any material dissolved from it which will furnish such objectionable conditions. Uncoated iron pipe rusts under the effect of most water, and iron so carried by the water is objectionable because of its staining wash bowls, clothing, etc., although it is probably not in the least injurious to health. Lead, on the other hand, which is dissolved by some water, is a cumulative poison, the Massachusetts State Board of Health reporting that 0.5 part of lead per 1,000,000 of water is dangerous. Cement when fresh gives a taste to water which is believed to be in no way injurious to health or for use for ordinary domestic purposes and this taste very quickly disappears.

Probably all metals are dissolved by certain kinds of water to a greater or less extent, although some are dissolved or corroded much more readily than others. Glass would seem to be an ideal substance, but its inflexibility seems to render its use impracticable. The substances commonly used, either for the whole pipe or as a lining, are wrought iron, steel, lead, brass, zinc and cement.

The securing of adequate capacity in a new pipe is merely a matter of selecting proper size, but the maintaining of such capacity depends upon the preventing of accumulations of matter on the walls of the pipe which reduce its capacity. Iron pipe has been known to acquire deposits of rust to the thickness of a quarter of an inch around its circumference, thus reducing a three-quarter-inch pipe to a one-quarter-inch; galvanized iron pipe has been more or less completely choked by the collection of flakes of the galvanizing at joints, bends, etc.

Standard service pipe is not often wanting in strength, failure by bursting being ordinarily confined to occasional instances of defective pipe. In the case of lead pipe, however, which material has less strength than any of the others commonly employed, instances have been reported where as a general practice pipes of too light weight have been used and increase of pressure, created for fighting an unusual fire, has caused scores of such services to burst.

Durability requires not only that the interior of the pipe should not be clogged by corrosion or scaling but also that such corrosion should not destroy the strength of the wall, and also that corrosion or other forms of attack from the outside that would be equally detrimental to the strength of the pipe should be avoided.

It is evident, of course, that a material which might be satisfactory in one city would not be so in another, inasmuch as the effect of the water on the pipe and the reaction of the pipe material on the water depend to a greater or less extent upon the nature of the water as well as upon that of the pipe. Most waters have no appreciable effect upon lead pipe, while others dissolve lead more or less rapidly. Most waters cause rust in iron or steel pipes, but there are a few that have very little effect of this kind. Even more varied are the effects of the various soils in which the pipe may be buried. Dry sandy soils probably have little if any effect upon

any kind of pipe, while soils continuously saturated with water containing humic acid have been the cause of rapid deterioration of service pipe in many cities, especially where the house services are of iron or steel. Each superintendent should therefore consider carefully his own local conditions as to character of water, nature of soil, etc., in making a decision on the kind of service pipe most suitable for his city, or even certain sections.

Probably the majority of superintendents believe that lead pipe is more generally satisfactory than any other kind, provided the water to be furnished through it is not such as to dissolve that material. Such pipe is pliable and easily carried past complicated subsurface structures and its freedom from corrosion by conditions commonly met makes its life almost endless. The chief objection to this pipe is its cost; added to which it may be difficult to obtain sufficient strength in cities where the pressures are very high. As to the poisoning of water by lead pipe, it is found that such action occurs chiefly where the water is soft and contains considerable carbonic acid. Water obtained from reservoirs are not likely to contain carbonic acid. In hard waters any tendency to acidity is neutralized. Where the water contains no carbonic acid there is a tendency to the formation of a coating of insoluble lead compound on the inside of the pipe rather than a corrosion of the pipe.

A few cities are using lead-lined wrought iron or steel pipe, thus securing the advantage of the lead in preventing rust or corrosion of the inside of the pipe and the advantage of the iron or steel in securing strength of pipe and reducing the cost. With such pipe, however, there remains the danger of corrosion from the outside of the pipe which danger may be greatly reduced by using pipe galvanized on the outer surface. Such pipe does not, of course, have the advantage of perfect flexibility possessed by lead pipe. Tin-lined pipe also is on the market for service pipe, but its expense combined with the possibility of corrosion of the outside pipe have prevented its general adoption.

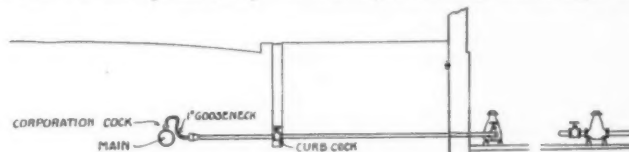
Brass pipe has been used in a few cases, but the cost of brass makes the expense of such services almost prohibitive, especially under present prices.

There are probably few cities nowadays which use either wrought iron or steel pipes without some protective coating, for such pipes are certain to become filled with rust and the expense of cleaning or renewing them will much more than offset the extra first cost of coated pipes. Probably about half the service pipes used in the country are of wrought iron or steel coated with zinc, known as galvanized pipe. Zinc is almost perfectly resistive to corrosion by water, but the thin coating is likely to have occasional pin holes through which the water can attack the iron underneath, resulting sooner or later in the destruction of the galvanizing. More serious, probably, is the fact that, as these pipes are ordinarily manufactured, a considerable quantity of scale is left on the inside of the pipe. In galvanizing, this scale is covered with zinc, but later becomes loosened and of course carries the zinc with it, leaving the iron or steel exposed to corrosion. It is reported that the National Tube Company has perfected a method of removing scale from pipes much more effectively than was practicable before, and if this is the case and the process is generally adopted, it should result in a much more satisfactory galvanized pipe than available before.

A few cities in New England have used cement-lined pipe and appear to be very well satisfied with them. The pipe is lined by the cities themselves, and several of the smaller cities have abandoned the use of the pipes not because they are unsatisfactory, but on account of the trouble of applying the lining. Recently cement-lined pipe and fittings have been put upon the market and it

is possible that they will come into more general use. Trouble with cement-lined services has occurred most frequently from corrosion on the outside of the pipe, and for this reason it is suggested that galvanized pipes be used for lining with cement rather than ordinary black pipe.

About a year ago a committee of the New England Water Works Association collected some statistics about service pipe, mostly from New England States. These showed that 22 cities had abandoned the use of uncoated iron or steel pipe, 11 of them adopting galvanized, 4 adopting lead, 3 lead-lined, and 4 cement-lined. Seventeen had changed from galvanized to other kinds, 7 of these to lead, 7 to lead-lined, 2 to cement-lined, and 1 to enameled. Six had abandoned lead pipe, 4 of them for galvanized and 2 for cement-lined. Eight had abandoned lead-lined pipe, 5 for galvanized, 2 for cement-lined and 1 for uncoated iron or steel. Twenty-seven had abandoned cement-lined, 16 for galvanized, 6 for lead and 5 for lead-lined. The changes from plain ungalvanized pipes were made almost entirely on account of rust. Changes from lead pipes were largely on account of the possibility of lead poisoning, although in



SERVICE CONNECTION, WITH CORPORATION, GOOSENECK, CURB COCK, CELLAR SHUT-OFF AND METER.

some cases it was on account of expense or because the pipes did not have sufficient strength. Lead-lined pipe was abandoned on account of lead poisoning and trouble from bursting and because of the difficulty of making joints that will not corrode. Statistics collected by Municipal Journal in 1915 showed that, of 421 cities reporting, 136 used wrought pipe exclusively and 130 for a part of their services; 144 used lead pipe exclusively and 108 for a part of the services; 4 used lead-lined pipe exclusively and 10 for part of the services; 1 used cement-lined pipe exclusively and 21 for part of the services; 1 used brass exclusively and 1 for part of the services, and 2 used tin-lined in part. Of those using lead for part of the services, 11 used it under paved streets, most of them using wrought pipe elsewhere. Lead-lined pipe appeared to be used largely and cement-lined exclusively in New England. Massachusetts was the most catholic, using every kind of pipe reported.

Iron and steel pipes, both plain and galvanized, appear to give trouble throughout the entire length of the pipe, while trouble with lead pipes appear to be largely concentrated at the corporation cock. Iron pipes laid in salt marsh or in cinder fill are almost certain to be acted upon rapidly by outside corrosion. One of the places where trouble frequently occurs is at the corporation cock or, where a gooseneck is used, at the junction of the gooseneck with the service pipe. Some of the troubles at the corporation cock are due to the tuberculation of the inside of the main pipe, which tends to cover the end of the corporation cock. This can be overcome in a large measure by inserting the corporation cock well beyond the inside of the main. A number of pipes are found to corrode through where passing through the cellar walls, and this leads to the suggestion that special precautions be taken at such points to prevent corrosion, such as encasing the pipe in cement in and for a foot or two outside of the cellar wall. It has also been suggested that a union might be put in the pipe a foot or two outside of the cellar wall so as to permit easy renewal of the short section of the pipe at this vulnerable point.

The WEEK'S NEWS

New Jersey Plans Road Construction—Paving in Pennsylvania Cities Last Year—American Armies Make Health Record—"Spanish Influenza" Cases in New York—The Wanaque Water Supply Development—Waterworks Employes Strike in Albany and in St. Louis—Newburgh, N. Y., to Buy Watershed—Boston Mayor Abolishes "Padrone" Labor System on Public Works—City Manager Changes—Pittsburgh Has City Housing Bureau—City Planning and Housing Developments in England.

ROADS AND PAVEMENTS

No Tolls on Pennsylvania Lincoln Highway.

Harrisburg, Pa.—The Lincoln Highway, in Pennsylvania, was freed entirely from the toll-road nuisance, when negotiations were concluded and the final papers signed by state highway commissioner J. Denny O'Neil and officials of the Turnpike Company, for the freeing of the Lancaster and Susquehanna Turnpike, in Lancaster county. Tourists and trucks, using the Lincoln Highway, may now travel from the Ohio state line to the New Jersey state line without the annoyance of paying toll. Since his appointment as highway commissioner of Pennsylvania, less than a year ago, commissioner O'Neil has succeeded in freeing approximately two hundred miles of "pay-as-you-drive" roads, which were located in Dauphin, Berks, Lebanon, Westmoreland, Fayette, Blair, Bucks, Fulton, Franklin, Montgomery, Delaware, Lancaster, York and Adams counties. The Pennsylvania Legislature, at its 1917 session, appropriated \$500,000 to the state highway department, for the purpose of freeing toll-roads located on state highway routes. Commissioner O'Neil inaugurated a plan of cooperation with the various counties in which tollroads were located, whereby the county pays one-half of the cost of freeing the highway, the state the remainder; and this plan has been carried out with the exception of one or two routes. However, Pennsylvania is not yet free from the toll-road nuisance, as there still remains a mileage of 508, of which 185 miles are located on state highway routes and 123 miles on county roads.

State Highway Construction Plans in New Jersey.

Trenton, N. J.—Plans for construction of sections of the New Jersey state highway system that will practically exhaust the \$3,000,000 available for highway work in 1919 under the Edge road tax act have been adopted by the state highway commission upon the recommendation of William G. Thompson, state highway engineer. Two main policies are involved in the 1919 program. First, that the sections of the highway system shall be roads of military importance, and second, that hard surfaces shall be built on the more important gravel roads in South Jersey, which are virtually impassable, except during the summer months of the year. The improvement provided for 1919 under the new building program follows:

Route No. 1.—All of the section between Robbinsville and Hightstown and the Mercer county line bridge above Hightstown. This road is now in very bad condition, due largely to inadequate drainage provisions. This route carries the major portion of the truck traffic between Newark, Trenton and Philadelphia. When the section to be built next year is completed there will be a continuous hard pavement between Menlo Park and the Delaware River at Trenton, and from Menlo Park to Newark by using the Metuchen-Perth Amboy-Rahway route. On Route No. 1 the program also includes improvement of a stretch between New Brunswick city line and Commercial avenue, New Brunswick, a section which is now in very bad condition. It is further proposed to resurface the rough macadam pavement of the Lincoln highway on Cherry street, between Rahway and Westfield avenues, in Elizabeth, a distance of seven-eighths of a mile.

Route No. 2.—It is recommended that the section of this route between Florence road and Bordentown be constructed to create a link in the good roads from Camden to Newark. This improvement will serve many manufacturing and farming interests along the Delaware River, between Camden and Trenton.

Route No. 3.—The section of this route between Da Costa and Egg Harbor is recommended for construction because of the recent location of the plant of the Atlantic Loading Company between Elwood and Hamonton. The completion of this section, together with the roads to be built this year, will

provide a fine pavement from Egg Harbor City to Camden, then to Trenton and Newark over Route No. 2. This is regarded as one of the most important places of the highway work, as it will connect up north, central and south Jersey by good roads.

Route No. 4.—The construction of that section between Amboy bridge and Broadway, South Amboy, and from Stevens Point to Morgan is recommended. This work will improve the only bad sections of road between Keyport and Elizabeth, and with the work done this year will give a continuous good highway from Red Bank to Newark.

Route No. 6.—On this route it is recommended that the section between Mullica Hill and Woodstown be built. When this stretch is built there will be continuous good roads from Wilmington ferry to Camden, and will connect up almost an airline route from Baltimore to New York over modern roads.

Route No. 8.—On this route it is recommended that the section from the Mountain View road toward Butler be built to provide a highway outlet for the industries in and about Butler to Newark.

Route No. 9.—Improvement of the most direct road from Phillipsburg to Elizabeth is recommended. This contemplates the removal of the Muscanetcong Mountain, affording easy travel to heavy traffic.

Route No. 10.—It is recommended that the section from Anderson avenue to Grand avenue, Ridgefield, be constructed to give a satisfactory outlet to the Hudson River.

Route No. 14.—It is recommended that the section from Sally Marshall crossing to Cape May Court House be built. This section is a part of a continuous chain of proposed modern highways from the extreme southerly end of the state to the northeasterly corner. The section to be built is of military importance because of naval activities in Cape May county.

Improve Road to Barracks.

St. Louis, Mo.—The state highway commission within a month will begin improving a roadway between St. Louis and Jefferson Barracks as a result of the government's announcement that such an improvement is a military necessity. The estimated cost, \$76,000, will be divided between the county and the state. A 20-foot strip will be paved for 2.7 miles. It is expected that the work will be done by convicts now in Jefferson city penitentiary.

Year's Paving in Pennsylvania Cities.

Harrisburg, Pa.—Information on the advancement of street paving in the third-class cities for 1917 has been compiled by Chief J. Herman Knisely, of the Bureau of Municipalities, a branch of the State Department of Labor and Industry, from original reports of cities, and it is believed that the decline of the paving operations was in a large measure due to diversion of paving materials for war purposes and to labor conditions. A statement issued by the bureau says: "A table prepared in the Bureau of Municipalities from statistics obtained from city engineers in 31 third-class Pennsylvania cities shows that the total yardage of paving laid in those cities during 1917 was 454,796 square yards, including 205,831 square yards sheet asphalt, 111,862 square yards brick, 67,000 square yards filbertine, 14,836 square yards wood block, 14,268 square yards amiesite, 13,132 square yards bitulithic slag, 12,465 square yards Hassam bicomac, 11,411 square yards concrete paving, 1,967 square yards granite block, 1,791 square yards asphalt block and 233 square yards stone block. Of the 31 third-class cities included in the 1917 paving compilation, Harrisburg leads in lineal mileage with 76.93 miles, while Erie, with 75 miles of paving, leads in yardage with 1,408,000 square yards, against 1,224,273.7 in Harrisburg. In both cities asphalt is the principal kind of pavement in use. Altoona is the third city in mileage, with 52.5, while Wilkes-Barre ranks fourth with 50.89 miles. Further comparison with these two cities shows Wilkes-Barre, although having less mileage, leads in yardage with 803,035.85 square yards, as against 766,316 square yards of pavement in Altoona. The city of Chester,

with 40 miles of paving, exceeds both Wilkes-Barre and Altoona on a yardage basis, having 867,000 square yards of pavement. Johnstown, with 44.18 miles of brick and asphalt, has 687,280.5 yards." The cities in the order of the number of miles of pavement they contain follow: Harrisburg, 76.93; Erie, 75; Altoona, 52.50; Wilkes-Barre, 50.89; Johnstown, 44.18; Allentown, 40.42; Chester, 40; McKeesport, 36.84; New Castle, 32.46; Reading, 27.35; Oil City, 24; Williamsport, 16.80; York, 16.50; Meadville, 16.26; Bradford, 16.24; Connellsville, 13.70; Franklin, 10.25; Titusville, 10.10; Lancaster, 10; Easton, 8.40; Carbondale, 7.80; Pittston, 7.52; Monongahela City, 7.15; Hazleton, 7.02; DuBois, 7; Corry, 5.68; Lebanon, 4.12.

SEWERAGE AND SANITATION

Health Record for American Armies.

Washington, D. C.—The War Department has issued the following statement from the office of the surgeon general: "A health rate, which as far as known has never been surpassed, has been established by the American armies both here and overseas. For the week ended July 26 the combined reports of the American Expeditionary Forces and of troops stationed in the United States show an annual death rate for disease of 1.9 per 1,000—less than 2 men per 1,000 per year. The annual death rate for disease of men of military age in civil life is 6.7 per 1,000. This new rate is based on an approximate strength of 2,500,000 men, and includes men living under abnormal conditions. The overseas record was made while American soldiers were participating in the heavy fighting in the Marne salient, when they were frequently compelled to sleep and eat under the most primitive conditions. That this record is truly representative of the general health of the troops is shown by the combined reports, which indicate the figure of 2.8 per 1,000 as the average death rate for disease during the past two months. An idea of the progress being made in military sanitation is gained by a comparison with the following: During the Mexican War the annual death rate for disease was 100 per 1,000. During our Civil War the ratio in 1862 was 40 per 1,000, while during 1863 the rate jumped to 60 per 1,000. The disease death rate for the Spanish-American War was 25 per 1,000. As far as available records show, the lowest figure heretofore recorded was 20 per 1,000 during the Russo-Japanese War."

"Spanish Influenza" Comes to New York.

New York, N. Y.—Dr. Royal S. Copeland, the health commissioner, in announcing the result of the health department's investigation of the reported cases of Spanish influenza which arrived in New York recently, asserted that the researches of experts indicated that in a few cases symptoms of Spanish influenza had been found in a mild form. Experts of the bureau of preventable diseases of the health department began an investigation on the arrival of a second ship whose surgeon reported twenty-one cases of Spanish influenza on the voyage. All his patients were in the convalescent stage and none had developed pneumonia, and the ship was passed. Five out of eight cases among passengers in the third cabin, all East Indians, died, and the others were removed to a hospital. "Researches made by experts in the department's laboratories," said Dr. Copeland, "indicate that in a few cases symptoms of Spanish influenza are found, and these in a very mild form. Of eleven cases of the disease arriving on one steamship a week ago we have found that the patients were stricken with pneumonia and bronchial trouble, and that no indication of the germs attributed to Spanish influenza had been located. We believe that owing to the present exigencies of submarine warfare passengers coming to this side contract heavy colds and later pneumonia, as a result of passing through the semi-arctic waters of the North and later are affected with fever, heat prostration and stomach disorders when coming through the Gulf Stream farther South. By the time they arrive here their condition is such that they must undergo a vigorous treatment for pneumonia. The department has obtained the name and

address of every passenger who is believed to have been affected by the disease, and also has under observation all persons who have come into contact with the persons affected. Our nurses and physicians are making daily visits to these persons, and will continue to do so until every possible danger of the disease spreading has been eliminated."

Power to Arrest Disease Suspects.

Los Angeles, Cal.—The police have the right to detain men and women suspected of having infectious diseases, but have no right to compel prisoners to submit to physical examination, according to a ruling by superior judge Paul J. McCormick denying the application of police court defender James Pope for the release from the city jail of an arrested woman. A special representative of the United States Army was present throughout the hearing. He asserted the decision was of the utmost importance in military welfare work. The woman, when arrested, was about to leave Los Angeles, and that fact caused the court to assert that persons with infectious ailments should not be permitted to travel at this time, especially in view of the number of soldiers who are traveling. The courts should take official notice of conditions and aid the United States government to conserve man power and maintain health throughout the country, judge McCormick said.

WATER SUPPLY

Paterson Out of Wanaque Development Plan.

Newark, N. J.—Paterson having formally announced its present inability to join in a contract for the development of the Wanaque watershed, the proposed contract will be redrawn as between Newark and the North Jersey District Water Supply Commission. This decision was reached at a hearing by the supply commission, at which mayor Amos H. Radcliffe represented Paterson and director Raymond of the department of streets and public improvements was the representative of Newark. It means that Newark, if it finally contracts for the proposed watershed development, will shoulder the full cost in the first instance, other cities that may come in from time to time reimbursing this city for their pro rata share of the expenditures made up to the time of their entrance, and thereafter assuming their just share of the expenditures that accrue from time to time in the continuation of the development. The position was taken by Paterson that that city is unable at this time to enter into the Wanaque contract. This is owing to the fact that Paterson does not now own its distribution system. The system is the property of the Passaic Water Company, a subsidiary of the East Jersey Water Company. Mayor Radcliffe explained that Paterson would proceed to obtain possession of the mains and other adjuncts of its distribution system as soon as practicable. Paterson reserves the right to enter into the contract at some future time under the terms and condition laid down by the North Jersey District Water Supply Commission. Mr. Raymond then called attention to a change he desired in the contract. The paragraph he referred to provides in its present form that the North Jersey board "may" inform the cities contracting for the Wanaque development when advances of money must be made, in the event that such payments are not found to be required at the times specified elsewhere in the contract. Mr. Raymond desired to substitute the word "shall," in order that the paragraph should make it mandatory for the North Jersey board to give such notice. The change was ordered. The estimated cost of the Wanaque development is \$9,047,200. Under the redrafted contract, if it is adopted by the city commission, Newark would assume the cost. But the money would be paid out only as the work progressed, and as Paterson and other cities desiring to share in the development and its benefits came in on the contract they would repay to Newark their shares of the expense incurred in carrying on the development and work up to that time, and thenceforward as-

sume their due proportions of further expenditures. Mayor Radcliffe explained that Paterson had not changed its intention, but that it would be unable to enter formally into a contract for the watershed development until present litigation over the project brought by the East Jersey Water Company and the Morris Canal & Banking Co., shall have been disposed of, and the city enabled to acquire its water distribution system. To do the latter, Mr. Radcliffe intimated, it would be necessary for the city to enter suit.

Waterworks Men on Strike—Others Win Raise.

Albany, N. Y.—An increase of \$1 per day in the pay of 37 employees at the waterworks plant was granted by mayor Watt after efforts had been made to compromise first with an increase of 50 cents and then 75 cents per day. However, the men would not budge from their flat demand of a \$1 raise. Soon after the mayor assumed office on Jan. 1, the engineers, firemen, oilers and coal passers made application for an advance in wages, basing their claim upon the fact that their labors had been increased because of the poor quality of coal they had to handle. The board of estimate at that time granted an increase of 25 cents a day. In July the same employees filed through the commissioner of public works an application for a further increase. It was explained to the men at that time that the waterworks were supposed to be self-supporting, that they were running behind, but that the administration would endeavor to take up the matter of wage adjustment as soon as the new water rates went into effect, which would be next December. The mayor learned later that the men were still dissatisfied, but assumed that they understood the situation and would wait until the new rates were in effect, at which time the mayor and members of the board of estimate could, in all probability, see their way clear to do something for them. A few days ago, however, a committee of about 20 out of the 37 waited on the mayor and stated that they wanted and demanded an increase of \$1 a day, and threatened to strike in two days if their request was not granted. Realizing the seriousness of the situation, and keenly appreciating the need for uninterrupted water service for the war plants in operation in the city, as well as for health and fire fighting purposes, and after witnessing a half-hour's exhibition of firemen attending boilers and drawing fires, and after further conference with commissioner Greenalch, deputy commissioner of public safety Nicholas J. Barry and county attorney Ellis J. Staley, representing the Albany County Home Defense Committee, the mayor concluded that in order to avoid shutting down the water works for even a short period of time the demands of the men should be granted with the understanding that no further claims from these employees will be received. This settlement was followed by a strike of about fifty men on outside work who also demanded a dollar a day increase. These included caulkers, street repair men, skilled laborers and meter inspectors. After conference a compromise was agreed to involving an increase from \$80 to \$90 a month. All the men returned with the exception of ten meter readers, who declared the granted increase inadequate.

Approve Bond Issue for New Water Supply.

Newburgh, N. Y.—By almost a three-to-one vote the taxpayers have approved the purchase by the city of the proposed Plattekill water supply at a cost not to exceed \$610,000. The new supply is urgently needed, the city having now to buy water from New York City. The vote was 712 to 269, a majority of 443. The vote was taken after a thorough campaign of education, in which reports of several consulting engineers at different times were quoted. After the election, city manager Henry Wilson made a statement on the next steps in carrying out the plans: "The committee of real estate men appointed to go over the properties covered by the options held by the city will report result at once, and the farms, the prices of which meet with the committee's approval, will be purchased, as the options expire on Sept. 1, 1918. The balance of the properties, if any, will be acquired by condemnation

proceedings. These lands are heavily wooded, and it is proposed to sell the timber, in lots, to be removed at once. The engineers included \$10,000 in their estimate for the purpose of clearing off the ground to be used for the reservoir, but it is believed the value of the timber to be sold will more than pay for the removing of it. The construction of the proposed dam will be commenced at once in order that the spring rains may be impounded. The water mains will be put into position as rapidly as present-day conditions of labor and material permit, and will, I hope, be completed by the fall of 1919, and water from the Plattekill shed should be supplying our high service by the winter of that year. It will be the aim of the city management to put into effect with as little delay as possible the edict of the taxpayers as expressed at yesterday's election. While we appreciate the necessity for expediting operations, we are nevertheless mindful of the obstacles which we will be obliged to contend with in obtaining labor and materials. We are confronted with the urgency of the undertaking on the one hand and our determination to economize to the last possible dollar on the other. The taxpayers may rest assured that in prosecuting this work the interests of the city and no other consideration will be our guide. Such of it as must be done now will be done as economically as possible; such of it as can be deferred without jeopardizing the comfort and safety of our citizens until more propitious conditions return will be held in abeyance. It may be that we will be favored with a copious rainfall which will enable us to get along with the supply from our present watershed. In that event the need for haste will be less urgent, and we will be able to proceed with the work under normal conditions rather than as an emergency undertaking."

Half-Hour Strike at Waterworks.

St. Louis, Mo.—Temporary suspension of work by about fifty firemen, oilers and engine room laborers at the St. Louis waterworks caused a diminution of the water supply in some sections of the city for half an hour. The men work in three shifts of nine hours each. The shifts are changed each week, and the men found that through the overlapping of these shifts some of the men put in the equivalent of an eight-hour day each month for which they were not paid. City officials quickly recognized their claim, and they returned to work.

GOVERNMENT AND FINANCE

Manager Carr of Niagara Falls to Springfield.

Niagara Falls, N. Y.—City manager Ossian E. Carr has tendered his resignation to take effect September 1. He has accepted the position of manager of Springfield, Ohio, to take the place of city manager Charles E. Ashburner, who has gone to Norfolk, Va. Manager Carr started in the new profession as manager of Cadillac, Mich., in April, 1914, at a salary of \$3,000 a year. In January, 1916, he was promoted to Niagara Falls at a salary of \$5,000. His work in this city has been successful in spite of attempts to overthrow the charter under which the manager plan was instituted. The salary of the Springfield manager is \$6,000. Manager Carr is a charter member of the City Managers' Association, having served as secretary for two years and as president for the year 1917. Prior to his entrance into the profession he was civil engineer for thirteen years, being engaged in various branches of government, municipal and railroad work.

Mayor Abolishes "Padrone" System on Public Works.

Boston, Mass.—As the result of action taken by mayor Andrew J. Peters and commissioner of public works T. F. Sullivan the so-called "padrone system" in contracts for construction let out by the city is at an end. In the contracts entered into by firms undertaking to do work for the city there is a provision that the contractor shall pay all employees engaged in work under the contract a sum of not less than \$2 per day. It has been the case in many contracts that the contractor was allowed as high as \$3 and \$3.50 per day for his labor. Numerous instances have

been known where the contractor hired his labor for \$2 and pocketed the difference. Where large numbers of men were employed and the job was at all lengthy this difference mounted up into pretty large figures. But this is a thing of the past. The standard form of contract used by the public works department has just been changed to provide that all employees engaged in work under contract shall be paid not less than \$3 per day, and this change has been made on the authorization of the mayor after conference with commissioner Sullivan. It is pointed out by commissioner Sullivan that the city cannot compel a contractor to pay a higher rate than the city pays, and \$3 is the present rate of pay for city laborers. The change in the contract, however, substantially eliminates the possibility for the padrone system, and this was the object aimed at by the mayor.

Manager Goes Back to Government Work.

Albuquerque, N. Y.—Paul G. Redington, who served as city manager since the new plan went into effect last January, has resigned to resume his work as district forester in the government forestry service. While manager Redington's efforts have met with the hearty support of the city commissioners, Mr. Redington gives as his reasons for resigning the feeling on his part that he lacks sufficient experience to fill the position to his own satisfaction, and that his services are needed by the government. A. R. Hebenstreit has been appointed his successor at a salary of \$3,600. Mr. Hebenstreit is an engineer of broad training, being a civil engineering graduate of Notre Dame and an accountant. He was formerly county engineer of Tama county, Iowa.

Manager for Model Town.

Anchorage, Alaska.—The latest addition to the membership of the City Managers' Association is J. G. Watts, townsite manager of this place. Anchorage has a population of about 5,000, and is under the management of the Alaskan Engineering Commission of the Department of Interior. Mr. Watts owes his appointment to this commission, and to this extent his position differs from that of the average city manager appointed by an elective council. His duties, however, are practically the same as those of the city manager, and in addition he performs the functions usually pertaining to the office of the mayor and council. He has charge of the municipal waterworks, fire department, garbage disposal department, highways department, and acts as mayor, tax assessor and city engineer. He writes: "In July, 1915, there was not so much as a single tent where the present town of Anchorage stands, and today we have all of the comforts of the most modern town in the States." Mr. Watts salary is \$3,300, and he was appointed in July, 1916.

City May Recover from Councilmen in Business.

Bangor, Me.—All of the thousands of dollars that have been paid by the city of Bangor to members of the board of aldermen and common council who have had business transactions with the city in the past can be recovered by the city, according to a decision received by clerk of courts Clinton C. Stevens. The rescript was handed down in a suit brought against ex-alderman Fred C. Ridley by the city of Bangor as an outcome of graft revelations of 1916. It was shown that alderman Ridley had furnished teams to the city, contrary to statute, and had been paid \$495.20 for these services. City solicitor James M. Gillin held that this money, having been illegally paid, could be collected, and the law court sustains his decision. Revised statutes, chapter four, section 43, reads as follows: "No member of a city government shall be interested, directly or indirectly, in any contract entered into by such government while he is a member thereof, and contracts made in violation thereof are void." The defendant had been paid by the city, with the approval of the department of the city government authorized to approve and pay said bill. The issue was, had he a legal right to keep the money in defense of the pending suit? The test of this question was found in the inquiry, had he a legal right in any form of action to recover from the city for his services?

CITY PLANNING AND HOUSING

City Housing Bureau Created.

Pittsburgh, Pa.—Mayor E. V. Babcock has appointed the following members to the newly-created municipal Bureau of City Housing, all to serve without compensation: John H. K. Burgwin, Crucible Steel Company; S. K. Connelly, Pittsburgh & Lake Erie Railroad Company; Harry C. Graham, Graham Nut Company; H. P. Haas, Freehold Real Estate Company; A. J. Kelly, Jr., Commonwealth Real Estate Company; E. E. McCoy, Iron City Products Company; O. P. Nicola, real estate; George S. Oliver, president Chamber of Commerce; W. F. Schleiter, Dilworth, Porter & Co.; A. B. Shepherd, Jones & Laughlin Steel Company; W. S. Wing, Universal Portland Cement Company. The ordinance creating the bureau also provides for the positions of secretary and stenographer-clerk, the former to be paid \$2,500 a year and the latter \$1,200. Announcing the names, the Mayor said: "It is an opportune time to study the housing question because of the Government's decision to build the great ordnance plant here. The problem as I see it, is to find out how many houses we are short and in what part of the city the shortage is, and by some means to provide homes as near as possible to the points where the men and women work. A workingman or woman should not have to ride one hour on a street car to and from work if they can get there and back in 10 or 15 minutes."

Government Housing in England.

London, England.—Mr. Hayes Fisher, president of the local Government Board, in discussing the housing question in the House of Commons, has said that his department, fully realizing the future needs and conditions of many municipalities, was going to try to establish a partnership with the local authorities so as to give them Government aid. He said that at least 300,000 houses must be provided for in some way. He proposes that the Government will find 75 per cent of the estimated deficit on the annual balance sheet of the houses constructed. At the end of seven years the houses would be valued, and if there was any of the excess of the debt remaining outstanding, the Government would meet 75 per cent of that excess, the rate payers being burdened with only 25 per cent of such deficit; and whenever such 25 per cent mean more than a penny rate, or there were unusual circumstances calling for special favorable consideration, the exchequer would meet such additional charge. The cost of construction because of increase in cost of raw material and labor will materially increase rent charges, but it may be supposed that a higher standard of earnings will enable working people to meet the demand.

Town-Planning Scheme in English City.

Huddersfield, England.—In 1913 the Huddersfield Corporation, realizing the advisability of municipal authority to some extent in house building in certain localities, with the object of securing proper sanitary conditions, amenity, and convenience in connection with the laying out and use of the land, obtained the sanction of the local government board to prepare three town-planning schemes for controlling certain unbuild and undeveloped portions of the borough. At that time it was suggested that the corporation should also have full control over the remaining undeveloped portions of the borough, and that further schemes should be prepared to give effect to this suggestion. The corporation is now asking for authority to prepare three additional schemes that will embody all the remaining undeveloped land in the borough. Owners of the land concerned have been notified of the action taken. The power thus sought by the corporation will not authorize the taking over of the land included within the schemes, but it will give authority to so advise and supervise as to control and impose sanitation conditions, and such laying out and use of the land as will best serve the general public needs. It is anticipated that at the conclusion of the

war, in order to meet the needs of the borough, considerable areas will have to be developed, as the number of small houses to be erected in Huddersfield alone can not be less than 1,000. This would seem almost too great a burden to be assumed at a time when the cost of building construction will be great, and ordinary municipal rates of taxation higher than in previous normal times; but developing industries and an increasing population will call for energetic action.

TRAFFIC AND TRANSPORTATION

238 Cities Have Increased Fares.

New York, N. Y.—According to an analysis and a compilation prepared by the American Electric Railway Association, street railway fares have been increased in a total of 238 cities. These involve a population of about 9,950,000 out of a total urban population of 41,000,000 in the United States—or over 24 per cent. The cities are located in 32 of the 48 states and in four out of the eleven Canadian provinces. A variety of methods of increase are in effect, ranging from a fixed ten-cent rate to the elimination of special workmen's reduced rates. These fare charges are summarized as follows.

Ten-cent fare	3 cities.
Eight-cent fare	1 city.
Ten-cent owl service; 7 cent regular	1 city.
Ten-cent owl service; 6 cent regular	1 city.
Ten-cent owl service; 5 cent regular	5 cities.
Seven-cent fare	39 cities.
Six-cent central zone with additional charge for ride outside	16 cities.
Six-cent fare	83 cities.
Five-cent central zone with additional charge for ride outside	11 cities.
Five-cent fare; 1 cent charge for transfer	17 cities.
Reduced rates eliminated	42 cities.
Four-cent fare; 1 cent charge for transfer	1 city.
Workmen's reduced rates abolished	18 cities.

Government Buys Cars for Street Railway.

Philadelphia, Pa.—A contract between the Philadelphia Rapid Transit Company and the Bureau of Industrial Housing and Transportation, Otto M. Eidlitz, chairman, has been signed under the terms of which the Philadelphia Rapid Transit Company is supplied with about \$1,750,000 with which to purchase ninety new cars and accessories. All of the new cars are to be used for the improving of transportation of war workers. Sixty of the cars will be used for League Island and thirty for the Chester Short Line, serving the Westinghouse plant at Lester and the Baldwin, Remington and other plants at Eddystone, also the yard of the Sun Shipbuilding Company at Chester.

Finances of Massachusetts Street Railways.

Boston, Mass.—That the troubles of the Bay State Street Railway company were due to its "country lines," and that the city lines were more than paying their way, is given in a statement recently issued by Wallace B. Donham, receiver for the company. A segregation of earnings recently made by the company showed that the city lines earned all charges, including full provision for depreciation, and came within \$253,935 of yielding a return of six per cent upon the income the return actually earned amounting to 5.08 per cent. In sharp contrast to this showing was that of the country lines, which failed to earn their operating expenses. There was a deficiency of \$1,359,428 in the amount required for all charges and a six per cent return. Although Bay State officials estimate that the new fare increases will produce \$1,671,000 additional revenue, the difficulty of predicting accurately the effect of higher fares has been demonstrated in connection with previous increases by this road. Since September, 1916, the company has on three different occasions been permitted to raise its fares. The total gain expected from all three increases was about \$1,120,000. In the ten months ending April 30, 1918, total passenger revenue for the whole system was \$8,257,357, and for the same ten months in 1915-1916, when the unit fare was five cents, it was \$7,537,891. Compared with the earlier period, the gain in 1917-1918 under the increased rates was \$719,466, or at the rate of \$863,359

for an entire year. This gain, however, was hardly more than might have been expected for two years' increase in traffic without any changes in fares and notwithstanding the two years' gap fell considerably short of the \$1,120,000 estimated. Receiver Donham recently estimated that the Massachusetts portion of the Bay State property needed total revenues of \$12,710,255 in order to cover operating expenses, taxes, depreciation, etc., in 1918, and to return six per cent on the investment. The actual operating results for five months ending May 31, 1918, show receipts approximately \$260,000 less and expenses approximately \$60,000 less than the estimated. Bay State revenue from freight traffic has grown considerably since the war began, but is still, by comparison, of minor consequence. Last year, the total income from this source was \$465,078, while passenger revenue amounted to \$9,952,970. It is believed the company will follow the lead of the steam railroads and increase its freight rates materially. There are excellent opportunities for increasing its freight business if the company had the facilities, which it has not. In view of the traffic congestion on steam lines, both shippers and the federal government would welcome the diversion of short-haul business to the electric lines.

Court Upholds Increased Fare.

Toledo, O.—Judge J. M. Killits of the Federal District Court has refused the petition of the city for a permanent injunction to prevent the Toledo Railways & Light Company from increasing its rate of fare. A temporary order to that effect had been in force for about three months. The company had made an increase in the rate of fare to 5 cents, with a charge of 1 cent for transfers, following an advance in the wages of trainmen about three months ago. The court said that the men must have a living wage and he requested mayor Cornell Schreiber not to interfere with the company's present unembarrassed operation. The case will be carried by the city to the higher court on appeal. The court cannot fix a rate of fare and it is only when the city acts unreasonably or fails to act at all that the court has any function. Then it may determine a reasonable rate of fare. If the city does not act, or until it does act, the company has a right to fix a rate of fare to which its patrons shall conform, he said. The company, the court said, is lawfully entitled to a rate of fare which will meet its current expenses and provide an annual return of at least \$480,000 above operating expenses. He believes that the present fare of 5 cents, with 1 cent for transfers, will not yield sufficient funds for this purpose. The city did not combat this claim, he said, but argued that some lower rate of fare should be tried as an experiment. The company is not a trespasser and may use the streets until the council directs that it shall stop its cars permanently. Since the company has no franchise, the only power the city possesses is of a regulatory nature in respect to the use of the streets. Such regulations will not be lawful under the constitution of the United States unless the company is permitted to charge a rate of fare that will bring in enough revenue to pay operating expenses and 6 per cent on the actual value of the railway investment. No attempt is made to determine whether the actual investment is represented by the amount of stocks and bonds outstanding, but it is asserted that it is fair to the patrons of the road that the net return be figured upon the actual investment, as ascertained in the usual way. The court says: "As long as wages, material and supplies are as high as now, the charge of 5 cent fares, with 1 cent for transfer, is absolutely necessary to give the company the revenue it is entitled to have; the evidence indicates that even that rate is not sufficient. There is nothing that can legally prevent a further raise in fares if the expenses of operation continue to increase. Fares are increasing in other cities. The mayor's proposition of eleven tickets for 50 cents would not bring in revenue to pay the company's increasing operating expenses and leave anything for the investment. The city has no power under present conditions to impose and enforce such a rate. In view of the facts before the court, such a rate would be unlawful and unenforceable under the law."

LEGAL NEWS

A Summary and Notes of Recent Decisions—
Rulings of Interest to Municipalities**Resignation of Police Chief—Time of Acceptance.**

(Mass.) Resignation of police officer of city of Newton, given to chief of police at his request to hold as club over head of officer, if valid originally, held open to acceptance only for reasonable time, which had elapsed when accepted in fact more than six years after delivery.—*Larrivee v. Mitchell*, 119 N. E. 654.

Fireman's Salary—Recovery of Increase.

(Tenn.) Employee of fire department of city, by accepting salary at old rate after Priv. Acts 1917, c. 488, increasing salary of employees of fire department became effective, held not to waive right to recover increase.—*Smiddy v. City of Memphis*, 203 S. W. 512.

Condition of Pavement—Power of Authorities to Determine.

(Ga. App.) Authorities of city of Atlanta have discretion to determine whether a pavement is worn out and to provide for its renewal by any material decided upon; the only limitation being that such discretion shall not be arbitrarily or unreasonably exercised.—*Randall Bros. v. City of Atlanta*, 95 S. E. 1016.

Paving Petition—Objection by Abutting Owner.

(Ga. App.) Where petition for paving is signed by proper percentage of abutting owners and paving ordinance is passed and subsequently repealed and a second ordinance is passed, it is unnecessary to have a new petition signed by the property owners.—*Burns v. City of Atlanta*, 96 S. E. 11.

(Ga. App.) Where abutting owner received benefit of paving and stood by and saw work done without objection, he was estopped from setting up in his affidavit of illegality irregularities in passing paving ordinance or any necessary preliminaries.—*Burns v. City of Atlanta*, 96 S. E. 11.

Commissioner's Power to Order Paving.

(W. Va.) Under charter of city of Huntington, city commissioners may determine which of its streets shall be improved by paving, and their determination in absence of fraud will not be reviewed by the courts.—*Damron v. City of Huntington*, 96 S. E. 53.

Paving Contract—Engineer's Estimates.

(Ore.) Where a contractor agreed to furnish materials and complete paving, and further agreed that the city engineer should by certificate determine the amount of materials used, and the engineer made such determination, the contractor could not recover a larger sum in the absence of allegations and proof of the engineer's fraudulent conduct or wilful disregard of fair computation.—*Elliott Contracting Co. v. City of Portland*, 171 P. 760.

Snow on Sidewalk—Injury—Liability of Owner.

(Ore.) To constitute negligence predicated on violation of a city ordinance by abutting property owner there must first be a duty owing by defendant to plaintiff.—*Smith v. Meier & Frank Inv. Co.*, 171 P. 555.

(Ore.) Under Portland ordinance requiring property owners to remove snow from sidewalks, and imposing penalty, where defendant failed to remove snow and ice, and plaintiff fell and was injured, the mere violation of the ordinance did not afford a cause of action to plaintiff, on which he could sue as a relator in the city's name.—*Smith v. Meier & Frank Inv. Co.*, 171 P. 555.

Portland City Charter, § 388, making abutting owner liable civilly to pedestrians injured by defects in sidewalks, does not impliedly raise cause of action in favor of pedes-

trian, who fell on walk from which the owner had failed to remove snow and ice, in violation of city ordinance imposing penalty therefor.—*Id.*

Bonding—Surety Company Not Joint Principal.

(Wash.) Surety company's bond, reciting its intended compliance with law relating to city contracts, and giving the persons for whose benefit it was made the right to sue thereon, in complying with Laws 1909, p. 716, was an ordinary statutory bond, and did not make the company a joint principal with the contractor.—*City of Pasco v. Pacific Casualty Co.*, 172 P. 566.

Contractor's Guaranty—Damage to Abutting Owners.

(Mo. App.) A city cannot maintain an action against a contractor for breach of guaranty in failing to repair pavement, where the city suffered no damage, the loss falling upon the abutting owners for whom the city is not suing as trustee.—*City of St. Joseph v. Rackliffe-Gibson Const. Co.*, 203 S. W. 223.

Sandstone Instead of Gravel Base—Validity of Assessments.

(W. Va.) Where paving contract called for gravel base, and contractor, with assent of city authorities, used a sandstone base, there was no such departure from contract as to make completed work different from that contracted for, so as to invalidate assessments duly confirmed without objection.—*Werninger v. Stephenson*, 95 S. E. 1035.

Paving District—Assessments in Another.

(Tex. Civ. App.) Under Vernon's Sayles' Ann. Civ. St. 1914, arts. 1008-1017, city is not authorized to assess benefits and levy special paving tax against owners of property in one district for purpose of paying paving contractor for paving streets in another district.—*Celaya v. City of Brownsville*, 203 S. W. 153.

City Dump a Public Enterprise—Negligence of Caretaker.

(N. D.) City maintaining a public dump for a public, and not a commercial purpose, is engaged in a public enterprise, and is not liable for the negligence of its caretaker in directing persons where to dispose of their refuse.—*Moulton v. City of Fargo*, 167 N. W. 717.

Paving Assessment—Injunction by Abutting Owner.

(W. Va.) Abutting owner on street proposed to be improved by special assessment, knowing facts claimed to make improvement contract avoidable, cannot escape by merely protesting when contract is made, but if protest is disregarded, must bring injunction before work is done and otherwise waives right to question contract.—*Damron v. City of Huntington*, 96 S. E. 53.

Street-Tax—Non-Payment—Penalty.

(Ala. App.) Cole, § 1251, and Acts 1915, p. 296, § 6, do not authorize a city to provide by ordinance for fining or imprisoning persons not paying street tax.—*Best v. City of Birmingham*, 78 So. 100.

Under Municipal Code, § 1336, authorizing municipalities to impose a street tax, but so much of an ordinance as undertakes to enforce payment by criminal process is in excess of the power granted by said section.—*Id.*

(Ala. App.) Section 47 of the old Birmingham charter, authorizing city to require male inhabitants to work on the streets with privilege of commutation in money, held repealed by Municipal Code, § 1336, authorizing imposition of street tax.—*Best v. City of Birmingham*, 78 So. 100.

Street tax authorized by Municipal Code, § 1336, held a tax, and not the exaction of a public duty, as in the case of the requisition of labor for working the highway.—*Id.*

Municipal Code, § 1336, does not authorize a city to require a citizen to work on the street, nor to impose a fine for the failure to so work, or to pay the street tax thereby authorized.—*Id.*

Under Municipal Code, § 1336, authorizing municipalities to impose a street tax, the city may authorize the acceptance of labor in payment of the tax.—*Id.*

NEWS OF THE SOCIETIES

Sept. 17-20.—PACIFIC COAST ASSOCIATION OF FIRE CHIEFS. Annual convention, Oakland, Cal. Secretary, chief Harry W. Bringham, Seattle, Wash.

Sept. 24-27.—INTERNATIONAL ASSOCIATION OF MUNICIPAL ELECTRICIANS. Annual convention, Atlanta, Ga. Secretary, Clarence R. George, Houston, Tex.

Sept. 25-26.—AMERICAN WATER WORKS ASSOCIATION, Central States Division. Annual convention, Pittsburgh, Pa. Secretary, R. F. Bricker, Shelby, O.

Oct. 2-4.—AMERICAN SOCIETY OF MUNICIPAL IMPROVEMENTS. Annual meeting, Buffalo, N. Y. Secretary, Charles Carroll Brown, 304 E. Walnut St., Bloomington, Ill.

Oct. 7-9.—AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual meeting, Chicago, Ill. Acting secretary, A. D. Williams, Morgantown, W. Va.

Oct. 14-17.—AMERICAN PUBLIC HEALTH ASSOCIATION. Annual meeting, Boston, Mass. Secretary, 126 Massachusetts Ave., Boston, Mass.

Oct. 17-19.—KANSAS PUBLIC SERVICE ASSOCIATION. Annual convention, Kansas City, Kan. Secretary, W. W. Austin, Cottonwood Falls, Kan.

Nov. 14-15.—WASHINGTON STATE GOOD ROADS ASSOCIATION. Annual convention, Pasco, Wash. Secretary, Clarence M. Lewis, Seattle, Wash.

National Safety Council.

The co-ordination of America's resources for the winning of the world war will take on added significance the week of September 16 to 20, when the seventh annual Safety Congress of the National Safety Council convenes at the Hotel Statler, St. Louis, Mo.

A message emphasizing the pressing need for the conservation of man power will be received from President Woodrow Wilson. A member of the Cabinet delivering the principal address at a public meeting to be held the opening day of the convention—"Safety as an Asset in Winning the War," by the Hon. Franklin K. Lane, will express the views of our national government in its determination to prevent every avoidable accident in industrial America. Charles M. Schwab, director of the Emergency Fleet Corporation, will give the principal address at the opening session of the convention, his subject being "The Democratization of Industry."

David Van Schaack, president of the National Safety Council, will call the Congress to order Monday morning, September 16, at 10 o'clock, awarding the place of honor to Mayor Henry W. Kiel, mayor of St. Louis, who will formally welcome the delegates and visitors, and the first business session of the convention will occupy the remainder of the forenoon.

Mr. Schwab's address will occur immediately after the noon intermission and he will be followed by Mr. John Ring, Jr., president of the Advertising Club of St. Louis, who will discuss the "Nationalization of the Safety Idea." "The Economic Value of Health of Industrial Employees," by Dr. Thomas Darlington, American Iron and Steel Institute, New York City, will be one

of the noteworthy addresses at this session. As a closing feature one of the latest industrial safety films will be shown.

The third session of the day will take the form of a public mass meeting and at this gathering the Secretary of the Interior will be the principal speaker. Patriotism will be given full opportunity for expression and a military band and addresses by prominent safety exponents will complete a day of unusual activity.

Tuesday's program will open with a general session, arranged primarily for the benefit of safety engineers desiring to familiarize themselves with the fundamental principles and methods of securing success in their safety work. Charles R. Hook, vice-president, operating division, American Rolling Mill Company, will preside as chairman. The papers and their authors follow: "The Real Problem of the Safety Engineer," Charles R. Hook, vice-president, operating division, American Rolling Mill Company, Middletown, Ohio; "How to Organize for Safety," Frank E. Morris, safety engineer, American Rolling Mill Company, Middletown, Ohio; "Modern Methods of Safeguarding," John J. Heelan, superintendent, Bureau of Inspection and Accident Prevention, Aetna Life Insurance Co., Hartford, Conn.; "Does the Attitude of the Foreman Deter-

mine the Success of the Safety Engineer?" W. E. Worth, general superintendent, Chicago Tunnel Company, Chicago, Illinois.

While the general session is progressing in the main meeting hall a special meeting of local council officers and committeemen, under the leadership of C. W. Price, field secretary of the National Safety Council, will take place in one of the smaller assembly rooms. Specialists in applying the national message to local needs will present scientific analysis of the work of the past year as follows:

"The Western Pennsylvania Division Plan," W. R. Rasmussen, permanent secretary, Western Pennsylvania division, Pittsburgh, Pa.; "The Ideal Local Council Program for Large Sized Communities," F. M. Rosseland, safety engineer, National Safety Council; "Successful Methods of Securing Attendance at Safety Meetings," Marcus A. Dow, general safety agent, New York City; "How to Successfully Conduct Foremen's Meetings," John W. Costley, chairman, Tri-City Local Council, Granite City, Ill.; "Moving Picture Mass Meetings for Workmen," E. B. Saunders, assistant field secretary, National Safety Council, Fitchburg, Mass.

Tuesday afternoon a general round table discussion, under the direction of Chairman Phillip Stremmel, general superintendent, Granite City Steel Works, will occupy the full time of the convention. Among the principal

(Continued from page 180)

PROBLEMS CITIES ARE STUDYING WITH EXPERTS

A FILTRATION PLANT to cost about \$100,000 is being planned for Levis, Que., by the consulting engineer, E. Hamel.

AN ELECTRIC LIGHT PLANT to be built by Cleburne, Tex., is being planned by the consulting engineering firm of Burns & McDonnell.

Stratford, Conn., is to build a \$150,000 SEWERAGE SYSTEM, plans for which are in course of preparation by the engineer, P. Goodell.

Billings, Mont., is to build a STORM SEWER to cost about \$107,000. The consulting engineers for the improvement are the firm of Alvord & Burdick.

WATERWORK IMPROVEMENTS are to be made by Calmar, Ia., for which the engineer is W. S. Evinger and the associate engineer is A. R. Coffeen.

Stonehouse Drainage District, Williamstown, Mass., is making DRAINAGE IMPROVEMENTS. Plans for the work were prepared by the Clarke E. Jacoby Engineering Co.

A WATER SUPPLY SYSTEM is being planned for Anoka, Neb., by the Heningsen Engineering Co.

A WATERWORKS SYSTEM to cost about \$50,000 is proposed for Arcadia, La. The consulting engineer for the improvement is Xavier A. Kramer.

A SEWERAGE SYSTEM to be built by Paragould, Ark., was planned by the consulting engineering firm of W. B. Rollins & Co.

Cowley county, Arkansas City, Ark., is to build a BRIDGE, plans for which were prepared by the consulting engineering firm of Harrington, Howard & Ash.

Cascade county, Great Falls, Mont., is to build two reinforced concrete arch BRIDGES, plans and specifications for which have been completed by the Toltz Engineering Co.

WATERWORKS IMPROVEMENTS to require a bond issue of \$165,000 are proposed for Guthrie, Okla. Plans and specifications for the work were prepared by the Benham Engineering Co.

INDUSTRIAL NEWS

Fuel Reduction for Cement Makers.

The United States Fuel Administration has issued an order curtailing the supply of fuel for the production of cement 25 per cent. The cement industry uses a very large quantity of coal, approximately 8,000,000 tons a year, and while a large quantity of cement is now being used for Government and other necessary construction, a careful study of the cement industry by the building section of the War Industries Board and by the Fuel Administration has shown that considerable quantities of cement are still being manufactured for use in non-war construction, which could be postponed until later.

Provision is made whereby cement manufacturers may make cement in excess of their 75 per cent. allotment, if this excess production is required by the necessities of the Government.

This order restricting the use of cement for non-war purposes will make available thousands of tons of coal for war use.

Stabilization of Crude Oil Production.

A. C. Bedford, Chairman of the National Petroleum War Service Committee, has announced a plan which has been recommended by that committee and approved by the United States Fuel Administration to accomplish two purposes. These are to stabilize the price paid for crude oil and to maintain the continuous, uninterrupted flow of crude oil in its present channels in so far as is practicable and just to the interests involved through the voluntary action and cooperation of the industry itself. The plan agreed upon is the result of numerous conferences held in different parts of the country. The fundamental features of the plan agreed upon are these:

1. That the large purchasing companies shall continue to purchase crude oil at the posted market price.
2. That all other purchasers who now pay a premium for crude oil, be hereafter permitted to pay certain stated premiums, they being substantially the same as those now in effect.
3. All contracts hereafter made for the diversion of crude oil from its existing channels are to be first submitted to committees on conciliation and co-operation, created by the trade. These committees will be constituted of an equal number of purchasers and producers of crude oil, and at least one and not exceeding three disinterested men of standing in the community.

The actions of these committees are to be reported to the War Service Committee, and in case of dispute which the national committee cannot settle, matters are to be referred to the Oil Division of the Fuel Administration. It is stated in Chairman Bedford's letter that "the purpose and intent being that the industry and all connected therewith shall use every effort to settle within their own councils all matters of dispute and

difference before burdening the Oil Division with their troubles, thereby carrying out to the fullest extent feasible principles of self-government."

It is also stipulated in the plan: "That all contracts hereafter entered into for the purpose of crude oil at a premium shall contain the following provision:

"That all parties to this contract agree that this contract shall be subject to cancellation or assignment in whole or in part at any time, upon the request or order of the President of the United States, of the United States Fuel Administration, or of the Director General of the Oil Division of the Fuel Administration, acting under authority of the President."

In making public the plan of the War Service Committee, Chairman Bedford issued this statement:

"It would be difficult to exaggerate the importance to the oil industry of the plan to regulate premiums paid upon crude oil as devised by the National Petroleum War Service Committee and approved by Mr. Requa, Director General of the Oil Division of the United States Fuel Administration."

"The scheme has been worked out by the industry itself, always with the cordial assistance and cooperation of the Oil Division. The effort has been to promote, first of all, the national interests, thereby contributing to the utmost in winning the war, and, secondly, to promote the welfare of the industry as a whole, especially with a view to preventing injustice to any factor in the industry, little or big."

"The plan is unusual and unique in that it is wholly a voluntary action of the industry, and, therefore, its success will depend upon the loyal and united support which is given to it by every element in the industry."

Priorities Regulation of Truck Manufacture.

Edwin B. Parker, priorities commissioner of the War Industries Board, has prepared for distribution to manufacturers of motor trucks a circular outlining the assistance the board will extend to them in the manufacture of their product.

The circular sets forth that, in so far as motor trucks are used directly or indirectly for war purposes, they are a war essential and their production for such purposes should be facilitated, and, further, that in so far as trucks are employed in essential uses in civilian industry they constitute an important transportation medium and curtailment for such uses should be avoided as far as possible.

The priorities division will receive the application of any manufacturer of motor trucks for a place on the preference list for fuel. In every case it will take into consideration the fuel situation of the manufacturer, the amount of its direct and indirect government business, and the uses to which the remainder of its products is being devoted. Any manufacturer whose plant now is or in future shall be exclusively devoted to manufacturing products being or to be absorbed directly or indirectly by the government, or other uses of essential importance, and whose fuel requirements and output bear proper economical relation to each other, may have such plant placed upon the preference list for fuel upon condition, however, that the manufacturer observe the pledge of cooperation and the rulings of the priorities board.

After pointing out the tremendous demand for steel and the necessity for its conservation, the circular states that any manufacturer of auto trucks whose plant now is or in the future shall be exclusively devoted to manufacturing products being or to be absorbed directly or indirectly by the Government, or in other uses of essen-

tial importance, may have such plant given a class B-4 rating for its steel requirements, conditioned, however, that such manufacturer shall observe its pledge of cooperation and the rulings of the priorities board.

Should any manufacturer of trucks conceive himself under the priority rules entitled to a higher than class B-4 rating for its steel requirements to complete any particular contract or order, he may present formal application for higher rating, which will receive the consideration of the priorities committee.

The manufacturer's pledge of cooperation shall apply to uses of steel already in its possession and of manufactured or partly manufactured trucks in its possession at the time the pledge is made.

The circular states that the demand for iron and steel are such that no guarantee can be made to the motor truck or any other industry that its steel requirements or any portion thereof will be met. However, the members of the motor truck industry, complying in good faith with the pledge of cooperation required, will be accorded the preferential treatment mentioned in procuring their supplies of fuel, iron, and steel.

The pledge of cooperation to be given by any manufacturer who desires to be placed on the preference list for its fuel requirements or who desires to be placed in class B-4 for its steel requirements should be in the form following:

"The undersigned hereby pledges itself (1) to use only in the manufacture of motor trucks or repair parts for motor trucks the steel suitable therefor, which is now in its possession or which may hereafter come into its possession; (2) to sell no motor trucks of its manufacture except (a) for essential uses, as that term has been or may be defined or applied by the Priorities Division of the War Industries Board, or (b) under permits, in writing, signed by or under authority of such priorities division; (3) to sell no user an unnecessary number of motor trucks even for essential uses; (4) to discourage the purchase of any motor truck to replace a usable truck already in service and to give maximum encouragement to the repair of trucks; (5) that this pledge shall bind not only the undersigned but also its branch houses; subsidiaries, dealers, brokers, factors, commission merchants, and all other selling agencies; (6) to make no delivery of any motor truck to anyone for resale, either directly or indirectly, until such one has filed with the undersigned its pledge of cooperation in writing; and to make monthly reports as required by the War Industries Board to the automotive products section of said board or otherwise as said board may direct."

The manufacturer must also require from anyone to whom he delivers a motor truck for resale a subsidiary pledge in much the same terms.

Each manufacturer must forward during the first 15 days of each month a sworn report to the Automotive Products Section of the War Industries Board showing the number of motor trucks manufactured in the preceding month, the number delivered to the United States Government and its allies, the number delivered for essential uses (giving details), the number of finished motor trucks on hand, the approximate stock of steel on hand, and such other information as may be required. These reports will be held confidential by the board, unless the public interest shall require otherwise.

The creation of new plants or the expansion of existing plants for the manufacture of motor trucks is held to be unnecessary and undesirable, inasmuch as existing facilities are ample to produce all the trucks required for essential uses or for which steel can be furnished.

NEWS OF THE SOCIETIES

(Continued from page 178)

topics to be discussed will be "How to Get the Manager Interested in Safety" and "The Promotion of Community Interest in Safety as an Industrial Asset." This session will give full opportunity for discussion of various methods successfully tried by members of the council in maintaining continual progress in accident prevention and for the asking of questions and the exchanging of views. A dinner and entertainment will follow, under the direction of the Mining and Iron and Steel Sections.

Tuesday, Wednesday, Thursday and Friday will witness the inauguration of sectional meetings, where the delegates will gather to discuss problems of accident prevention peculiar to their calling or industry. Each sectional meeting will be followed by an experience meeting and employers, safety committeemen and others will have full opportunity to tell their experiences in safety work or ask counsel and advice.

An informal dinner will be held Wednesday evening, September 18, with W. B. Bilheimer, general manager, Franklin Life Insurance Company, St. Louis, toastmaster. A novelty in the form of a five-minute address by President Woodrow Wilson, by long distance telephone, through courtesy of South Western Bell Telephone Company, will be a leading feature of the occasion. The new director of the American Museum of Safety, R. M. Little, will speak on "Forethoughts and Afterthoughts on Safety" and a patriotic address will be made by James Schermerhorn of Detroit, and "The New Place the War has given Women in Industry" by Miss Jane Adams, Hull House, Chicago, Illinois, will complete the evening.

Among the interesting sectional meetings are those on Construction, Electric and Street Railways, Public Utilities, Health Service, Governmental and Public Safety.

At the Tuesday afternoon meeting of the Health Service section, the papers will include: "Occupational Diseases; Suggestions for their Prevention," by Dr. David L. Edsall, Harvard Medical School, Cambridge, Mass.; "Women in Industry; Their Work and their Health," by Mrs. Samuel Semple, member Industrial Board, Pennsylvania Department of Labor and Industry; "Shop Hygiene and Sanitation," by Dr. J. W. Schereschewsky, U. S. Public Health Service.

The Public Safety section will meet Tuesday afternoon under the chairmanship of Charles M. Talbert, director, department of streets and sewers, St. Louis, Mo. The secretary of the section is William Burgess, executive secretary of the Public Safety Commission of Chicago. Thomas Adams, of the Canadian Conservation Commission, will speak on "City Planning as Related to Public Safety." This

will be followed by an "informal traffic court." Wm. G. Bryant of the Safety First Society of Detroit, will discuss "Legal Phases of Traffic Regulation." "Making Walking Places Safe" will be the subject of H. W. Mowery, American Abrasive Metals Co., New York City.

On Wednesday morning the Public Safety section will make an inspection tour over the business of St. Louis, paying particular attention to street traffic problems. There will be shown an exhibit of traffic signs, signals, semaphores, "No Parking" signs, safety zones and towers, and their operations, etc., will be explained by representatives of the manufacturers. At the afternoon session each member making the trip will report personal observations. The feature of this session will be an address by Julian H. Harvey, director of the Six Months' Experimental Public Safety campaign at Rochester, N. Y., who will describe in detail his work, the first of its kind in the world.

At the Thursday afternoon session of this section the following papers will be presented: "Automobile Headlamps," W. F. Little, Electrical Testing Laboratories, New York City; "Desirability of Uniform Signs and Signals, with Some Suggestions," H. P. Coffin, chairman, Public Safety Commission, Portland, Ore.; "Public Accidents—What They Mean in Monetary Loss," A. W. Whitney, general manager, Workmen's Compensation Service Bureau, New York City; "The Classification of Public Accidents," Frederick S. Crum, assistant statistician, Prudential Life Insurance Co. of America, Newark, N. J.

The Construction Section's meeting on Wednesday morning will be devoted to the following program: "Organizing for Safety—How to Secure the Cooperation of Superintendents, Foremen and Men," L. D. Von Woedtke, Fred T. Ley & Co., Springfield, Mass.; "Safe Construction of Scaffolds and False Work," T. F. Foltz, mechanical engineer, Pennsylvania Department of Labor and Industry; "Effect of Accident Prevention on Insurance Rates," H. L. Geisler, secretary, Builders' Limited Mutual Liability Company, Madison, Wis.

On Wednesday afternoon this section will listen to the following: "Accident Prevention in the Shipbuilding Program," W. B. Shoe, district safety engineer, U. S. Shipping Board; "Benefits of Accident Prevention in Contracting," F. S. Robertson, secretary, General Builders' Association, Detroit; "Safeguarding Machinery and Other Equipment," W. J. Lynch, Thompson-Starrett Co., Chicago.

The Public Utilities Section will meet Wednesday morning. The officers are: Chairman, C. B. Scott, general manager, Bureau of Safety, Chicago; vice-chairman, C. E. Paige, manager, Malden & Melrose Gas Light Co., Mass.; secretary, H. B. Harmer, Philadelphia Electric Co. The program includes: "Interesting the Public in Co-

operative Accident Prevention," Herman Spoehrer, Union Electric Light & Power Co., St. Louis; "Theoretical Possibilities and Practical Values of Accident Prevention," Herbert W. Moses, Boston Edison Electric Illuminating Co.; "Modern Methods of Accident Prevention in Small Companies," Wills MacLachlan, inspector, Electrical Employers' Association of Canada.

On Wednesday afternoon there will be a joint Health Service and Governmental Section meeting. Lt.-Col. Harry E. Mock, U. S. Army Surgeon General's office; C. A. Prosser, director of Vocational Education, Washington; Douglas C. McMurtrie, Red Cross, will discuss "The Return of the New Cripple to Industry." A symposium on the responsibilities for the industrial cripple will be participated in by Harry A. Mackey of the Pennsylvania Workmen's Compensation Bureau and Dr. Francis D. Patterson of the Pennsylvania Department of Labor and Industry.

On Thursday morning the Electric Railway Section will hold a meeting at which will be presented: "Getting Results: Education vs. Discipline," C. G. Rice, Pittsburgh Railways Co.; "How the Various Efforts to Promote Safety in a Community Can be Coordinated," V. J. Waltz, Toledo Railways & Light Co.; "The Small Company and Intensive Training," "The Mission of the Municipal Publicity Expert," D. E. Parsons, East St. Louis & Suburban Railway Co.; "The Conservation of Humanity and Prevention of Accidents by Traffic Survey," R. N. Hemming, Ft. Wayne & Northern Indiana Traction Co.

The Governmental Section meeting on Thursday morning will be presided over by Dr. Alice Hamilton, U. S. Bureau of Labor Statistics, with Leonard W. Hatch, chief statistician, Bureau of Statistics and Information, New York, secretary. After the chairman's address, S. W. Stratton, chief, U. S. Bureau of Standards, will speak on "The Need for Uniform Safety Standards," and there will be a symposium on "Coordinated Plan for National Employment" from the standpoint of the Federal government, the state and industry, discussed by J. B. Densmore, director general, U. S. Employment Service; Col. Lewis T. Bryant, New Jersey commissioner of labor, and Arthur H. Young of the International Harvester Co.

An interesting session of the Paper and Pulp Section on Friday morning will be devoted to industrial housing.

The St. Louis city council, the Chamber of Commerce and many of the business, educational and civic bodies have joined to make the convention a success. The five mayors of St. Louis, East St. Louis, Granite City, Madison and Venice have issued a joint proclamation calling attention of the citizens to the meeting and the celebration of Public Safety week. Churches, newspapers, schools and theatres will cooperate.

ADVANCE CONTRACT NEWS

ADVANCE INFORMATION BIDS ASKED FOR

CONTRACTS AWARDED ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS.				
N. M.	Santa Fe.....Aug.	31..	Constructing 21.8 ml. state road, including grading and gravel surfacing	State Highway Commission.
O.	Burton	Aug. 31..	Improving a number of streets	Theodore Myleb, Vil. Clk.
S. D.	Aberdeen	Aug. 31..	11 miles of road	J. C. Daly, Co. Aud.
O.	Rocky River.....Sept.	1..	Grading, draining, curbing and paving with asphalt, 5-in. concrete or brick block to cost about \$40,000.....	E. H. Arnold, Town Engr.
O.	Woodsfield	Sept. 2..	Road construction	I. O. Swallow, Co. Aud.
Ind.	Richmond.....11 a.m., Sept.	2..	Two 4-horse King road graders or their equal.....	Lewis S. Bowman, Co. Aud.
Tenn.	Nashville.....Sept.	2..	Road construction on three sections, 2 1/4, 12 1/2 and 11 miles in Franklin, Bedford, Moore and Greene counties, to cost about \$250,000.....	A. M. Nelson, State Highway Engineer.
Ind.	Nashville	1 p.m., Sept.	2.. Constructing stone or gravel road.....	Omer Morrison, Co. Aud.
N. D.	La Moure.....2 p.m., Sept.	2..	Grading road	O. C. Temple, County Aud.
Fla.	Daytona Beach.....Sept.	3..	Surfacing and grading streets; also paving with brick, asphaltic concrete and concrete, including 8,000 ft. concrete curbing and 14,000 sq. yds. pavement.....	Town Clk.
Ind.	Peru	Sept. 3..	Draining and graveling road.....	Frank K. McElheny, Co. Aud.
Wash.	Kalama.....2 p.m., Sept.	3..	Surfacing with gravel.....	Co. Engr.
Utah	Ogden	10 a.m., Sept.	3.. Constructing sidewalks, curb and gutters.....	City Engr.
Ind.	Mt. Vernon.....2 p.m., Sept.	3..	Constructing three gravel roads.....	Jos. R. Haines, Co. Aud.
Ind.	Kokomo	10 a.m., Sept.	3.. Constructing stone road.....	Wm. L. Benson, Co. Aud.
Fla.	Ocala	noon, Sept.	3.. Constructing 28.4 miles of road on four jobs.....	Clk. of Co. Comrs.
Fla.	Fort Pierce.....10 a.m., Sept.	3..	Clearing and grubbing 20 miles of road.....	County Comrs.
N. J.	Trenton	10:30 a.m., Sept.	4.. Constructing 12,668 sq. yds. bituminous concrete pavement (Topeka) in Gloucester Co., and 47,800 sq. yds. concrete pavement in Middlesex and Somerset Counties	A. Lee Grover, Chief Clerk State Hwy. Com.
N. J.	Middlesex.....9 p.m., Sept.	4..	Paving boulevard with Portland cement, concrete surface on cinder foundation	C. S. Crouse, Boro. Clk.
N. J.	New Brunswick.....Sept.	4..	Paving street, involving 3,540 sq. yds. portland cement, concrete surface, and 4,720 sq. yds. cinder foundation.....	C. S. Crouse, Boro. Clk.
N. J.	Morristown....2 p.m., Sept.	4..	Reconstructing road in Rockaway, involving 6,692 sq. yds. brick and 3,632 sq. yds. concrete; 6,912 sq. yds. concrete foundation	Winfield Hopkins, Co. Engr.
Kan.	Kansas City.....Sept.	5..	Resurfacing 12,600 ft. road 16 ft. wide with bituminous binder macadam	W. Beggs, Co. Clk.
Mo.	Jefferson City...10 a.m., Sept.	5..	Grading, graveling and macadamizing 26.24 ml. of road.....	E. F. C. Harding, Co. Surv.
Pa.	Harrisburg	10 a.m., Sept.	5.. Reconstructing 9,550 ft. one-course plain cement concrete, Venango Co.; 5,600 ft. one-course plain cement concrete, Lancaster Co.; 2,085 ft. and 9,156 ft. one-course plain cement concrete and 404 ft. hillside vitrified block, Westmoreland Co.; 26,112 ft. vitrified block on concrete foundation or one-course plain cement concrete, Fayette Co.; 7,783 ft. one-course plain cement concrete and hillside vitrified block on concrete foundation, Warren Co.....	J. Denny O'Neill, State Hwy. Com.
Pa.	Harrisburg	10 a.m., Sept.	5.. Constructing following roads: 26,112 ft. vitrified block or plain concrete, Fayette Co.; 5,600 ft. plain concrete, Lancaster Co.; 5,700 ft. water bound macadam, Lebanon Co.; 9,550 ft. plain concrete, Venango Co.; 7,782 ft. hillside vitrified block and plain concrete, Warren Co.; 9,156 ft. plain concrete, 404 ft. hillside vitrified block, and 2,085 ft. plain concrete, Westmoreland Co.....	J. Denny O'Neill, State Hwy. Comr.
Mo.	Jefferson City...10 a.m., Sept.	5..	Grading, surfacing with gravel and macadam 22.5 miles 9 ft. wide and 3.9 miles 16 ft. wide.....	E. F. C. Harding, Co. Hwy. Engr.
Miss.	McComb	2 p.m., Sept.	6.. Improving 21 and 14 miles of highway in two districts.....	C. F. Sherman, Engr.
Neb.	Wahoo.....noon, Sept.	6..	2,100 yds. earth work.....	Jos. B. Hines, County Clk.
Neb.	Franklin.....8 p.m., Sept.	6..	Cement sidewalks on a number of streets.....	Henry Plank, City Clk.
Miss.	Brookhaven	Sept.	6.. Improving 14 ml. and 21 ml. of road in two districts.....	G. F. Sherman, Engr., McComb, Miss.
Mich.	Blissfield.....2 p.m., Sept.	6..	Paving three streets with asphaltic concrete and reinforced concrete	Village Clk.
O.	Iberia	2 p.m., Sept.	7.. Constructing road	F. L. Craley, Twp. Clk.
N. J.	Flemington.....Sept.	9..	Paving two roads 18 ft. wide, involving 23,733 sq. yds. waterbound macadam on rock foundation.....	G. Davis, Engr., Whitehouse Sta.
Tex.	Falfurrias	10 a.m., Sept.	9.. Excavating, grading, repairing subgrade and placing caliche surfacing on 20 miles of road.....	O. D. Kirkland, Co. Clk.
Wash.	Okanogan	Sept. 13..	Surfacing 1 ml. of highway with gravel.....	Co. Comms.
Ind.	North Vernon.7:30 a.m., Sept.	13..	Street repairs	E. E. Olcott, City Clk.
O.	Oberlin	noon, Sept.	14.. Resurfacing two streets.....	E. G. Dick, Engr.
Ariz.	Bisbee.....Sept.	14..	Grading two road sections	J. C. Ryan, Co. Hwy. Engr.
N. Mex.	Santa Fe.....Sept.	16..	Constructing 15.45 ml. of state road involving 4,182 ml. road grader work, 12,085 cu. yds. two-course crushed rock surfacing and 62,602 cu. yds. excavation.....	State Hwy. Com.
SEWERAGE.				
Ont.	Waterloo Twp.....Aug.	31..	Constructing drain	P. A. Snider, Twp. Clk.
Ia.	Sac City.....10 a.m., Sept.	2..	Drainage improvements, including tile, catch basins, connections, etc.	E. W. Moyer, Co. Aud.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Ia., Clinton	Sept.	3..	Constructing drainage ditches, involving twelve 36-in. salt-glazed vitrified tile.	Fred. H. Lohberg, Co. Aud.
Fla., Daytona Beach	Sept.	3..	2,600 ft. 15 to 18-in. sewer pipe; drain pipe and house connections, etc.	Town Clk.
Utah, Ogden City	10 a.m., Sept.	3..	Constructing pipe sewers.	City Engrs.
Neb., Tekamah	10 a.m., Sept.	3..	Drainage bridge enlargement, involving 128,973 cu. yds. excavation.	F. O. Lundstrom, Co. Clk.
Ia., Mason City	Sept.	3..	Drainage ditch construction, involving 74,500 ft. 6 to 34-in. tile.	Geo. E. Frost, Co. Aud.
Minn., Anoka	2 p.m., Sept.	3..	6,000 ft. 5-in. cement drain tile; 3,300 ft. 5-in., 400 ft. 6-in., 700 ft. 7-in. and 400 ft. 8-in. clay drain tile; wye junctions.	Arthur A. Caswell, Co. Aud.
Ia., Des Moines	9 a.m., Sept.	4..	2,513 ft. 10-in. vitrified clay pipe sewer.	Supt. of Sts. and Pub Impvts.
Pa., Carnegie	7:30 p.m., Sept.	5..	Constructing storm sewer.	Boro. Clk.
Minn., Ironton	8 p.m., Sept.	10..	Sanitary sewer construction.	Theodore Grimsted, Vil. Clk.
WATER SUPPLY.				
O., Sandusky	noon, Aug.	31..	Construction and installation of two water tube boilers with trimmings and smoke breeching; steam water blowoff; feed and drip connections; brick work, and one 400-hp. open feed water heater, including tearing out of old machinery and pipe lines at water works plant.	Geo. M. Zimmerman, City Mgr.
Okla., Okmulgee	Sept.	1..	Extending mains and constructing new pumping station to cost about \$385,000.	City Clerk.
O., Freeport	6 p.m., Sept.	2..	Water works improvements, including cast-iron pipe lines, valves, hydrants and appurtenances.	W. J. Sherman Co., Engrs., Toledo, O.
N. D., Grafton	8 p.m., Sept.	2..	Laying 6-in. and 4-in. water mains.	J. H. Johnson, City Aud.
S. C., Liberty	noon, Sept.	2..	Constructing waterworks system.	J. F. Bannister, Chrmn. Bd. of Pub. Wks.
S. D., Wolsey	8 p.m., Sept.	2..	Artesian well.	W. W. Howes, City Aud.
Neb., Scottsbluff	4 p.m., Sept.	3..	Water main extension.	M. O. Sohns, City Clk.
Cal., Martinez	Sept.	3..	Constructing water distribution system, including 1,500,000 gals. reinforced concrete reservoir, two triplex pumps, 34,000 ft. c. i. pipe, 6,900 ft. screw pipe, 139 gate valves and 50 ft. standpipe, to cost about \$130,000.	Olmstead & Gillelen, Engrs., Hollingsworth Bldg., Los Angeles, Cal.
Mass., Lynn	8 p.m., Sept.	3..	Two motor-driven centrifugal pumping units.	Commr. of Water Supply.
Wash., Kirkland	Sept.	5..	Laying 4-in. water mains.	Albro Gardner, Jr., Town Engr.
N. D., Grafton	Sept.	6..	Laying 6-in. and 4-in. mains.	J. H. Johnson, City Aud.
Va., Alexandria	Sept.	15..	2,000,000-gallon filtration plant to cost about \$130,000.	D. J. Howell & Son, Engrs., Union Trust Bldg., Washington, D. C.
LIGHTING AND POWER.				
Ind., Greenfield	2 p.m., Sept.	3..	Erecting smokestack at county heating plant.	County Auditor.
O., Marshallville	Sept.	7..	Repairing and furnishing machinery for municipal electric light system.	F. E. Kieffer, Vil. Clk.
Colo., Denver	2 p.m., Oct.	1..	Furnishing 5,000-kw. vertical hydraulic turbine and generator.	U. S. Reclamation Service, Washington, D. C.
FIRE EQUIPMENT.				
N. J., Gibbstown	Aug.	31..	Furnishing 1,000 ft. 2½-in. double-ply, rubber-lined Al hose.	Melvin S. Tussey, Clk.
Ga., Columbus	Sept.	3..	Motor combination chemical and hose truck.	J. S. Gordy, Chrm. Com. of Fire Dept.
N. J., East Orange	8 p.m., Sept.	3..	Two miles of underground cable.	James H. Owen, Sec. Bd. of Fire Commrs.
BRIDGES.				
N. Y., Arlington	1 p.m., Aug.	31..	Constructing concrete arch bridge.	C. R. Cornell, Supt. of Hwys.
S. D., Aberdeen	Aug.	31..	Corrugated metal and concrete culverts.	J. C. Daly, Co. Aud.
O., Dayton	10 a.m., Aug.	31..	Constructing extension to bridge.	Walter H. Aszling, Co. Clerk
N. D., Mandan	Sept.	2..	Constructing two pile bridges 40 ft. long.	E. R. Griffin, Co. Surv.
O., Canton	10 a.m., Sept.	2..	Constructing concrete bridge.	W. C. Schick, Co. Clk.
Kan., Salina	11 a.m., Sept.	2..	Six concrete bridges.	W. H. Cost, Co. Engr.
Ind., Peru	Sept.	3..	Constructing bridges and culverts.	Frank K. McElheny, Co. Aud.
O., Akron	10 a.m., Sept.	3..	Constructing culvert.	Chas. J. Costigan, Co. Surv.
Mass., Boston	noon, Sept.	3..	Rebuilding bridge in West Roxbury.	Room 511, City Hall Annex.
Neb., Beatrice	noon, Sept.	3..	Concrete arch culvert.	M. C. Penrod, County Clk.
S. D., Parker	2 p.m., Sept.	3..	Constructing bridges, abutments and approaches; repairs.	V. B. Clikeman, Co. Aud.
N. J., Mount Holly	Sept.	4..	Constructing concrete bridge, involving 180 piles and 622 cu. yds. concrete, etc.	J. Logan, Co. Engr.
O., Lima	noon, Sept.	4..	Constructing concrete bridge.	City Engr.
O., Hamilton	Sept.	4..	Concrete and steel superstructure for bridge.	Fred. M. Hamerle, Co. Surv.
Pa., Beaver	noon, Sept.	4..	Repairing masonry wing wall of bridge; also several hundred yards of excavation in straightening channel of creek.	Michael Baker, Co. Engr.
Miss., Hattiesburg	noon, Sept.	5..	Constructing steel bridge.	Herbert Gillis, Chancery Clk.
Pa., Pittsburgh	8 p.m., Sept.	5..	Grading, paving and curbing in Charters Twp.	Andrews & Southerd, Engrs., Curry Bldg.
Mo., Jefferson City	10 a.m., Sept.	5..	Constructing culverts and bridges.	E. F. C. Harding, Co. Hwy. Engr.
O., Akron	10 a.m., Sept.	6..	Constructing culvert.	Chas. J. Costigan, Co. Surv.
O., Eaton	noon, Sept.	7..	Constructing several bridges.	John Ryder, Co. Surv.
O., Sidney	10 a.m., Sept.	7..	Reinforced concrete slab bridge over canal.	W. A. Harmon, Co. Aud.
Ore., Baker	Sept.	7..	Constructing three steel bridges with concrete abutments.	County Clerk
N. D., Cavalier	Sept.	7..	Reinforced concrete abutments.	W. W. Selson, Co. Aud.
Ga., Newnan	10 a.m., Sept.	7..	Constructing steel bridge consisting of two 40-ft. spans with 16-ft. clear roadway, on reinforced concrete piers and abutments.	T. G. Farmer, Jr., Clerk of Comrs. of Roads & Rev.
O., Columbus	noon, Sept.	8..	Concrete bridge construction, involving removal of old superstructure, alteration of present abutment.	W. J. Herman, Clk. Board of County Comrs.
O., Canton	10 a.m., Sept.	9..	Reconstructing bridge.	W. C. Schick, Co. Clk.
O., Columbus	Sept.	9..	Constructing concrete bridge, including excavating and building sub- and superstructures, to cost about \$67,000.	J. J. Dim, Co. Engr.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Tex., Falfurrias	.....10 a.m., Sept.	9..	Constructing concrete bridge and culverts.....	O. D. Kirkland, Co. Clk.
Pa., Pittsburgh	.....11 a.m., Sept.	10..	12,500 ft. grading and paving.....	John P. Moore, Co. Comt.
Ill., Rockford	.....Sept.	10..	Constructing 12-span reinforced concrete arch bridge, 780 ft. long and 30 ft. wide, to cost about \$84,500.....	A. R. Cater, Engr.
Ga., Dalton	.....11 a.m., Sept.	10..	Constructing timber bridge.....	H. J. Wood, Co. Clk.
O., Dayton	.....10 a.m., Sept.	12..	Bridge construction.....	Walter H. Aszling, Co. Clk.
Ariz., Bisbee	.....Sept.	14..	Constructing bridges and culverts.....	J. C. Ryan, Co. Hwy. Engr.
N. Mex., Santa Fe	.....Sept.	16..	120-ft. steel span bridge, four 31-ft., six 21-ft. and 2,630 lin. ft. corrugated iron culvert; 350 cu. yds. concrete head walls; retaining walls.....	State Highway Com.
Mont., Great Falls	.....noon, Sept.	16..	Constructing reinforced arch bridge, about 1,200 ft. long, 29.6 ft. roadway and 7-ft. sidewalk.....	John E. Moran, County Clerk
O., Canton	.....10 a.m., Sept.	16..	Reconstructing bridge.....	W. C. Schick, Co. Clk.
Ill., Taylorville	.....Oct.	1..	Steel and reinforced concrete bridge construction.....	C. Pennington, Supt. of Hwys.
MISCELLANEOUS.				
N. Y., Schenectady	.....2:30 p.m., Aug.	31..	Furnishing three bodies for motor truck chassis.....	Bd. of Contract & Supply.
Ia., Clinton	.....Sept.	3..	Ditch construction, involving 34,725 cu. yds. excavation, dragline work, 10,600 ft. 12 to 36-in. tile, etc.....	E. R. Anderson, Co. Engr.
Colo., Denver	.....2 p.m., Sept.	3..	Furnishing cast iron gates and gate lifts for Strawberry Valley project, Utah.....	U. S. Reclamation Service.
Colo., Denver	.....2 p.m., Sept.	5..	Furnishing drag-line excavators.....	U. S. Reclamation Service.
Md., Baltimore	.....Sept.	5..	Erecting nine light structures in San Shoal Inlet, Va.....	Supt. of Light Houses.
Mont., Whitehall	.....Sept.	5..	Constructing earth dam, involving 40,000 yds. earth excavation and 20 miles main canal with 10 miles laterals, to cover at least 4,000 acres.....	G. E. Baker, Consult. Engr.
Ind., Lyons	.....2 p.m., Sept.	7..	Constructing levee.....	John E. Isles.
D. C., Washington	.....Sept.	9..	Repairing pier walls in Boston Navy Yard, involving removal of old concrete, laying granite, placing reinforcing fabric, and placing mortar with cement gum Spec. No. 3291).....	Bur. of Yds. & Docks, Navy Dept.
O., Cincinnati	.....10 a.m., Sept.	9..	Constructing guide walls at locks at Valley View and Ford, Ky.; guard walls at locks at College Hill, Ravenna, Willow and Heidelberg, Ky.; partial demolition and rebuilding of guide wall at lock at Heidelberg....	B. F. Thomas, Dist. Engr., U. S. Engineer Office, Room 415 Custom House.
Wyo., Lovell	.....2 p.m., Sept.	12..	Drainage improvements involving 70,000 ft. drain tile, sizes 10 to 21 in.....	Cotner & Cotner, Engrs.
Tex., El Paso	.....Oct.	1..	Constructing canals on Rio Grande irrigation project, involving about 63,800 cu. yds. excavation, near Hatch, New Mexico.....	U. S. Reclamation Service, Washington, D. C.

ROADS AND STREETS

Tusculum, Ala.—No bids received by county commissioners of Colbert county for graveling 7.71 ml. of Jackson highway between this city and Russellville.

Phoenix, Ariz.—A resolution was adopted for the improvement of the alley in Block 60, original townsite, also a resolution for the improvement of Van Buren between Third and Sixth Aves. City Manager V. A. Thompson.

Napa, Cal.—A petition to construct a new road to Yountville has been brought before Napa county board of supervisors.

Wilmington, Del.—State Treasurer William J. Swain is advertising for proposals for \$600,000 state highway bonds. The bids will be opened Sept. 9. The bonds will bear 4½ per cent. interest and be dated Jan. 1, 1918. Of the amount \$500,000 will be of \$1,000 denomination and \$100,000 will be \$500 bonds.

Pensacola, Fla.—City voted Aug. 16 on issuing \$25,000 bonds for grading, paving and curbing streets between Banancas Ave. and O St. and between Garden and Government Sts., near the Pensacola shipbuilding plant; also \$50,000 bonds for grading, paving and otherwise improving streets, including repaving and repairing De Villiers St.

Pensacola, Fla.—See "Miscellaneous."
Kellogg, Ida.—City Clerk J. E. Jones receiving bids Sept. 1 for street bonds, \$14,772.

Decatur, Ill.—See "Bridges."

Indianapolis, Ind.—Marion county bonds amounting to \$176,000 have been sold by Treasurer Sourbier to the Fletcher American National Bank at par and accrued interest for the construction of the Speedway road. The work will be commenced as soon as the sale has been approved by the national capital issues board at Washington.

Bedford, Ia.—Miss Hattie V. Crum, of Bedford, has purchased funding road and bridge bonds recently authorized by Taylor Co.

Davenport, Ia.—The George M. Bechtel Co. was awarded the \$80,000 grading bonds recently authorized by the city council.

Davenport, Ia.—In order to get a comparison of relative costs, the street and paving committees of the city council decided to call for bids on 33,000 yards of grading, and to side them with the cost of an elevating grader and tractor with which the city could do its own work.

Davenport, Ia.—Estimates of the cost of grading, paving and curbing the following streets and alleys are now on file at the City Hall: South Ave., from west line of Arlington Ave. to west line of Farnam St.; estimated cost \$14,738.01, with asphaltic concrete or brick. Arlington Ave., from south line of Columbia Ave. to north line of South Ave.; estimated cost \$8,002.63, with asphaltic concrete or brick. Park Lane St., from west line of Harrison St. to alley west of Western Ave.; estimated cost \$15,683.95, with asphalt concrete or brick. Lombard St., from west line of Scott St. to west line of Western Ave.; estimated cost \$2,797.98, with asphaltic concrete or brick. Norwood Ave., from west line of Ripley St. to east line of Western Ave.; estimated cost, \$2,642.25, with asphaltic concrete or brick. Western Ave., from north line of Lombard St. to south line of Park Lane St.; estimated cost \$10,724.27, with asphaltic concrete or brick. Koester Ave., from west line of Scott St. to east line of Western Ave.; estimated cost \$2,294.95, with asphaltic concrete or brick. Hayes St., from west line of Brady St. to Scott St.; estimated cost, \$19,558.36, with asphaltic concrete or brick. Garfield St., from west line of Harrison St. to alley west of Western Ave.; estimated cost, \$12,506.57, with asphaltic concrete or brick. Scott St., from south line of Norwood Ave. to south line of Park Lane St.; estimated cost, \$5,036.74, with asphaltic concrete or brick. Grant St., from west line of Main St. to 182 ft. east of Scott St.; estimated cost, \$6,041.95, with asphaltic concrete or brick. Objections heard Sept. 4. Hugo Moeller, city clerk.

Iola, Kan.—The Allen county commissioners have approved the petition asking for the construction of a concrete road from the Missouri Pacific crossing on East St to the township line just this side of the bridge across Rock creek, a distance of one mile, and ordered the road to be built. The work will not be let to a contractor, but will be built by the county under the direction of County Engineer Stebbins. Under the federal

and state laws the cost of the road will probably be between \$15,000 and \$16,000.

Boston, Mass.—An issue of highway bonds, 200,000, were purchased by the sinking fund trustees during the month of July.

Detroit, Mich.—Contracts for paving the following streets and alleys shortly let by department public works: Strong Ave., from Ackley to Sherwood Ave., 28 ft. wide, involving 1,899 cu. yd. grading, 3,560 sq. yd. asphaltic concrete on 6-in. concrete, 2,164 ft. straight and 63 ft. circular Berea or Medina curb, 224 lin. ft. retaining stone and 65 cu. yd. concrete under and behind curb; alley between 15th, 16th Sts., Grand River and Warren Ave., 20 ft. wide, 126 cu. yd. excavation, 451 sq. yd. one-course concrete, 258 lin. ft. 2x6-in. retaining plank, 22 lin. ft. retaining stone, etc.; North and South alley first east of Chene St., in block between Chene St., Grandy, Piquette Ave. and Tromley St., also East and West alley, 16, 17.93 and 20 ft. wide, 352 cu. yd. excavation, 1,025 sq. yd. one-course concrete, 958 lin. ft. 2x6-in. retaining plank, 42 lin. ft. retaining stone, etc.; alley between 8th St., Brooklyn Ave., Porter and Lacrosse St., 20 ft. wide, 277 cu. yd. excavation, 778 sq. yd. one-course concrete, 550 lin. ft. 2x6-in. retaining plank; alley between 6th St., Greenwood, Selden Aves. and Frank St., 12 ft. wide, 63 cu. yd. excavation, 238 sq. yd. concrete and 358 lin. ft. 2x6-in. retaining plank; East and West alley between Russell, Ripelle, Frederick Sts. and Kirby Ave., 20 ft. wide, 253 cu. yd. excavation, 734 sq. yd. one-course concrete, 1,654 lin. ft. 2x6-in. retaining plank, etc.; "T" alley between Baldwin, Seymore, Goethe and Mack Aves., 18 ft. wide, 556 cu. yd. excavation, 1,728 sq. yd. concrete, 1,654 lin. ft. 2x6-in. retaining plank, 34 lin. ft. retaining stone, etc.; North and South alley between Park St., Woodward Ave., Sibley and Sprout Sts., 15 ft. wide, 239 cu. yd. excavation, 444 sq. yd. one-course concrete; alley between Duboise, Chene Sts., Milwaukee Ave. and East Grand Blvd., 20 ft. wide, 1,231 cu. yd. excavation, 2,919 sq. yd. one-course concrete and 2,474 ft. retaining plank 2x6 in. All alleys in block between 12th St., Avery, Grand River, Alexandine and Willis Aves., 20 ft. wide, 424 cu. yd. excavation, 1,554 sq. yd. one-course concrete, 1,390 lin. ft. 2x6-in. retaining plank, etc. G. W. Hubbell, engineer.

Duluth, Minn.—Resolution introduced which provides for the construction of 5-ft. cement walk on east side of Eighth Ave. west from 1st St. north 100 feet. Also on the west side of Sixth Ave. east, from Eighth alley to 8th St.

Pascagoula, Miss.—City will improve streets and sewers at cost of \$100,000. Specifications by Engineer Xavier A. Kramer, Magnolia, Miss. Forest Johnson, mayor.

Great Falls, Mont.—City council ordered a concrete pavement in First alley north, between 9th and 10th Sts.

Atlantic City, N. J.—Plans for paving the Tuckahoe road, part of state route No. 14, from Beach's corner in Mays Landing to a point beyond the administration building of the Bethlehem Loading Company, have been approved by the Atlantic county board of freeholders. The schedule has been forwarded to the New Jersey highway commission. If approved bids will be advertised for and the contract awarded to begin work by October. The board also approved plans for a paved road from Elwood to Amato, the Atlantic Loading Company's plant, and is asking for state aid on this work. Otherwise the county will build out of its own budget.

Camden, N. J.—The county's allotment from automobile license for the year 1918 will be \$108,000. This fund will go toward the maintenance and improvement of the country roads. State road commission.

Newark, N. J.—In response to the plea of manufacturers for better roads on the meadows Director Raymond of the department of streets and public improvements promised to have Ave. R put in condition to bear heavy traffic, to improve the eastern end of Wilson Ave., formerly Doremus Ave.; to pave Wilson Ave. from Ave. L to the intersection of what was formerly Doremus Ave., and to consider the completion of Delancey St. so that it will connect with Ave. R.

Paterson, N. J.—George W. Botbyl, clerk of the board of freeholders of Passaic county, receiving bids Sept. 4 for \$230,000 road bonds.

Trenton, N. J.—State highway commission adopted resolution providing that the Morris Plains-Wenville road shall be taken over immediately as a part of the state highway system and improved.

Newburgh, N. Y.—City council adopted resolution authorizing the issue of improvement bonds of the city in the aggregate sum of \$49,667.65, to defray the cost of repaving Liberty St., between Broadway and Renwick St.

Rome, N. Y.—City, Aug. 21, sold an issue street improvement bonds, \$10,701.55. A. L. MacMaster, city clerk.

Reno, Nev.—The Nevada highway department has accepted \$20,000 from the Lincoln highway association for road building in Lander, Eureka and Churchill counties, with the condition an equal amount is to be appropriated by the state of Nevada. Construction work will commence in a few weeks if labor and materials can be secured.

Winston-Salem, N. C.—It is reported that the people of the King section of Stokes county have raised approximately \$3,200 to complete the good road from the Forsyth county line to King, a distance of 2 miles. The work on the road will be started at once and it is the purpose to complete it by October. Pinnacle proposes to build a good road from Pinnacle to Kink, which will complete a link of road that will connect Winston-Salem and Mount Airy, via King. The Five Forks road committee composed of V. T. Grabs, chairman, T. S. Petree, J. E. Turner and J. E. Stone will have the supervision of the building of the new road from the Forsyth county line to King. Work is to start at once.

Defiance, O.—Defiance county auditor, C. O. Decker, will take bids Sept. 5 for an issue \$6,200 road repair bonds.

Middletown, O.—See "Water Supply."

Palmersville, O.—An issue Sanford St. improvement bonds, \$29,000, purchased by Wm. R. Compton Co., of Cincinnati. G. E. Guisewite, city clerk.

Rocky River, O.—Village Clerk Frank Mitchell will take bids Sept. 17 for \$11,000 road bonds.

Rocky River, O.—Sept. 17 village receives bids for the sale North View road assessment bonds, \$10,000.

Warren, O.—Trumbull county receiving bids Sept. 3 for an issue highway bonds, \$30,000. M. H. Evans, clerk county commissioners.

Jay, Okla.—See "Bridges."

Coquille, Ore.—The county court will rock the road from the lower landing to

the upper landing under supervision of the district foreman. The bids filed for the work were considered too high and were rejected. The work will be done at once.

Eugene, Ore.—A number of property owners in College Crest addition and adjoining tracts in the foothills south of Eugene have signed an agreement whereby they will give the right of way free for the proposed road between Eugene and Lorane. The survey for the road has been practically completed by Hollis W. Libby, county engineer.

Roseburg, Ore.—No bids were received by the county court for the construction of the advertised section of road beyond Camas Valley toward the Coos county line. The court decided to proceed with the construction of that piece of road on "force account" under supervision of County Engineer Germond.

Bethlehem, Pa.—Ordinance was introduced for the paving of 2d St., from New to Pine Sts., and Pine St., from 2d to 3d Sts.

Bethlehem, Pa.—Council passed ordinance for paving of Goepf St., from Hawthorne road to Bridge St. Bids will be received for construction at once.

Bethlehem, Pa.—The question of widening the Freemansburg road to a new width established by the United States Government of from 33 feet to 70 feet was brought to the attention of council in a communication from Robert L. Fox, city engineer, Mayor Johnston.

Phoenixville, Pa.—The question of paving Nutts Ave., one from Gay St. to Main St., will likely be decided by town council very soon. The street committee is securing prices on stone and other material.

Clarksville, Tex.—Sealed proposals received Sept. 10 for \$73,000 road bonds. R. J. Williams, Judge of Red River county.

Dallas, Tex.—Dallas county soon lets contract regrading and graveling Garland-Rowlett Rd. J. F. Witt, county engr.

Texarkana, Ark., Tex.—Texas council passed a resolution providing for the paving of Pine St. from Broad to 4th St. City will pay \$2,000 as its portion of the cost. Alderman Broshears' motion that State Line Ave. be graveled from 23d St. to the city limits was adopted. Mayor Nichols.

Bristol, Va.—City Clerk Chapman Below receiving bids Sept. 23 for \$50,000 street bonds.

Cathlamet, Wash.—The Kahklakum county development league, just organized, is planning a road from Kelso, in Cowlitz county, to North Beach, in Pacific county. A. T. Flagg, temporary chairman.

Olympia, Wash.—King county will receive \$11,317.63 of the \$49,955.26 of the permanent highway maintenance fund, derived from motor vehicle licenses and fines, according to the apportionment made by State Auditor Clausen. The highway fund is apportioned as follows: Adams county, \$1,040.13; Asotin, \$201.83; Benton, \$597.83; Chelan, \$784.81; Clallam, \$553.43; Clarke, \$948.07; Columbia, \$440.75; Cowlitz, \$610.58; Douglas, \$572.40; Ferry, \$144.51; Franklin, \$493.36; Garfield, \$475.45; Grant, \$729.03; Grays Harbor, \$1,626.84; Island, \$84.04; Jefferson, \$327.32; King, \$11,317.63; Kittitas, \$320.68; Kittitas, \$978.43; Klickitat, \$682.96; Lewis, \$1,122.67; Lincoln, \$1,249.03; Mason, \$279.11; Okanogan, \$413.48; Pacific, \$673.50; Pen Oreille, \$276.42; Pierce, \$3,646.27; San Juan, \$77.22; Skagit, \$1,001.79; Skamania, \$253.69; Snohomish, \$1,886.38; Spokane, \$5,570.34; Stevens, \$571.02; Thurston, \$680.39; Wahkiakum, \$89.09; Walla Walla, \$1,500.01; Whatcom, \$1,348.91; Whitman, \$2,230.41; Yakima, \$1,453.46.

State Washington—More than \$830,000 will be expended by the United States Government on Washington roads during the next two years, the state engineers' convention was told in an address by Dr. L. I. Hewes, district engineer, office of public roads, United States Government. During the next two years the federal government is scheduled to aid the Northwest in the construction of more than \$7,000,000 worth of roads. This work is to be done under the Federal Aid Act of July 11, 1916. The state of Washington totaling more than \$830,000. Of this amount \$647,000 will be for the post roads and \$184,000 for national forest roads. The national aid for road making has been growing yearly since the summer of 1916, when the government offered the first \$5,000,000. Since then two additional allotments of \$10,000,000 and \$15,000,000, respectively, have been made and

the next two allotments are to be respectively \$20,000,000 and \$25,000,000.

Bluefield, W. Va.—An ordinance was introduced providing for the macadamizing of South St., in South Bluefield, with concrete base.

Charleston, W. Va.—Estimates for road work in five more counties have been approved by the state road commission on reports are made by the engineers and estimates on federal aid for roads of Greenbrier to the amount of \$4,554.77, and Wetzel to the amount of \$3,202.06 have been forwarded to Washington. The estimates in the five counties paid out of state funds are: Wirt, \$78,849; Randolph, \$3,372.76; Ohio, \$951.56; Hampshire, estimate No. 1, \$1,403.93; estimate No. 2, \$2,021.93.

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

Pine Bluff, Ark.—*W. J. Parkes Engineering Co., this city, for all the engineering work in connection with the newly formed road district in Grant county. The road will be constructed from Sheridan to Dallas county line, and will take up the old railroad right of way.

Los Angeles, Cal.—Fred Hoffman, 111 E. 12th St., this city, for constructing 5.92 miles of disintegrated granite road from Lancaster east toward Redman townsite in road improvement district No. 141, Antelope Valley, at \$50,000.

Ventura, Cal.—Fairchilds, Gilmore, Wilton Co., 396 Pacific Elec. Bldg., Los Angeles, Cal., for improvement of portion of Telegraph road "A" St. Sespe Ave.; Central Ave.; Santa Clara St. and adjoining the city of Fillmore, Ventura county, at \$1 per cu. yd. and 13½¢ per sq. ft.

Washington, D. C.—*Cranford Paving Co., 2622 E St. N. W., at \$25,133, for roads and pavements at Judiciary Park, by U. S. Government.

Carrollton, Ga.—Municipal Engineering & Construction Co., Atlanta, Ga., by the city to pave streets and sidewalks and construct curb and sanitary sewers. Specifications by Engineer Knox T. Thomas, 502 Forsyth Bldg., Atlanta, Ga.

Lebanon, Ind.—*George Miller, Lebanon, Ind., for the construction Kincaid road. Commissioners of Boone county.

Davenport, Ia.—*McCarthy Improvement Co., surfacing Fillmore St., from 6th to 7th Sts., \$2,409.75; grading, curb and gutter on Eastern Ave., from High to North Sts., \$4,923.30, and same on Locust St., Carey to Eastern Aves., Iowa Construction & Engineering Co., \$4,761. Board of public works.

Opelousas, La.—*R. M. Hollier, Opelousas, for building 8 mi. Kretz Spring road, 24 ft. wide, dirt, about \$24,000. F. O. Pavy, president, police jury, St. Landry county.

Lansing, Mich.—*Farrell Bros., for the grading for paving Logan, Butler and Isaac Sts., for the sum of \$2,600. Mayor J. W. Terie.

Muskegon, Mich.—*Johnson Construction Co., for resurfacing streets surrounding Hackley Park and Third and Peck Sts., \$43,491.

Pipestone, Minn.—*Campbell Construction Co., 3050 Hennepin Ave., Minneapolis, for grading, curbing and paving Bailey St. from Frances St. to Anna St.; also grading and paving alley. S. W. Funk, city clerk.

Cass Lake, Minn.—*Aaby & Maturi, Chisholm, for paving 5 blocks, crushed rock. Engr., W. E. La Fountain.

Duluth, Minn.—*August A. Bodin & Son, for the repairing and relaying of the cement and tile sidewalks from the west line of Twentieth Ave. west to Eighty-third Ave. west, \$5,081.75.

Fulton, Miss.—*W. M. Guthrie, Tupelo, Miss., for excavation of about 24 miles of road from Itawamba to Lee county line, at 25¢ per cu. yd.

Kansas City, Mo.—*P. F. Gray Material & Construction Co., 1925 Vine St., West Prospect, for paving Mersington St., at \$18,580; *Ed. Meegan, 53d and Swope, this city, for grading 56th St., at \$3,754, and *J. C. Lyle, Grand Ave., Temple, for paving at \$2,279.

Lincoln, Neb.—*Geo. Berg, Lincoln, for 1,200 sq. ft. sidewalk along park property. Theo. H. Berg, city clerk.

Minden, Neb.—*Charles E. Patridge, Minden, for work on federal aid roads.

North Platte, Neb.—*N. E. Loudon, North Platte, Neb., for cement sidewalks, also 3 cement water drains, 9 ins. wide, about 3,000 sq. ft. A. F. Streitz, secy.

Camden, N. J.—Board of freeholders approved the contract awarded to Ruth-erford & McNulty for the improvement of the Blackwood Rd. and the Browning Rd. For the Blackwood Rd., \$32,000, and the Browning Rd., \$10,000. This only includes the labor; the county is to furnish the material.

Newton, N. J.—George Belcher, of Hackensack, at \$46,682.60, and the Franklin Contracting Company, \$45,-870.84, bidders for the paving of one and three-quarter miles of Ross' Corner-Sussex road; bids opened Aug. 19 by Sussex county board of freeholders.

Newburgh, N. Y.—The Schunnemunk Construction Co., Highland Mills, for the construction of 6 miles of asphalt macadam road at Long Lake West in the Adirondacks, at approximately \$200,000.

Charlotte, N. C.—Noll Construction Co., the West Construction Co., and the Ely Construction Co. bidders. The paving contemplated includes in a general way with possibly a few exceptions College, Tryon, Trade and Church Sts., two blocks north and south from Trade, and work not included in this area to the extent of several blocks. Mayor McNinch.

Mott, N. D.—G. H. Hardaker, Mott, N. D., for turnpiking approximately 21 miles of road at \$160 per mile.

Norwalk, O.—Modern Construction Co., Fremont, O., only bid for constructing 4.59 miles of pavement on the Maumee pike between Bellevue and section line, at \$175,149.

Astoria, Ore.—John R. Hill, for constructing five miles of new road up Floras Creek in the northern end of Curry county, at \$12,455.

St. Helena, Ore.—G. L. Tarbell & Son, Yankton, Ore., for clearing and grading of Koppier road in district No. 3, at \$2,585.

Spokane, Wash.—Mitchell Bros. only bidder for paving Trent Ave., at \$15,-578.50, bituminous with a concrete base. Leonard Fink, comr. of pub. wks.

Black River Falls, Wis.—J. R. McDonald, Black River Falls, for Federal Aid Project No. 24, Div. No. 5, 2.18 miles concrete surfacing, \$45,165, clearing 4 acres, 12,303 cu. yds. excav., borrow 42 yds., class A concrete 22 yds., concrete surfacing 20,350 yds., guard rail 1,905 lin. ft., class A concrete bridge 245 cu. yds., baluster 164

Denmark, Wis.—Schuster & Nomitz, Denmark, for approximately 1,900 lin. ft. 16-ft. road. May put in 2,000 or 3,000 lin. ft. more. Road and bridge comm. Brown county.

East End, Wis.—Otto Neuman, S. Superior, for graveling Union St. on Central State Rd. Lee bridge to Ph. De Bock.

Merrill, Wis.—Geo. Langley, Merrill, for grading and gravel surfacing, Federal Aid road, Div. No. 7, Merrill-Tomahawk road, 16,857 yds. grading, 36,500 sq. yds. gravel surfacing.

Lake Mills, Wis.—Geo. Welch, Beloit, Wis., for 2,444 sq. yds. reinforced concrete pavement and 2,200 ft. curb-gutter. Engineers, Reichardt & Peirce, Watertown. V. S. Ravenhill, city clk.

Milwaukee, Wis.—Badger Constr. Co., Ry. Ex. Bldg., for paving 27th St., from Cedar to Vilet Sts.; about \$16,650.

Moncton, N. B.—Warren Bituminous Paving Co. Ltd., McKinnon Bldg., Toronto, for concrete sidewalks for the departments of works.

SEWERAGE AND SANITATION

Sayerton, Ala.—Republic Iron Street Co. will construct sanitary sewer system to include 300 septic tanks; cost, \$25,000.

Morrilton, Ark.—Engrs. Harrington, Howard & Ash, Osceola Bldg., Kansas City, Mo., drawing plans for sewers, \$20,000; bids called shortly.

Los Angeles, Cal.—An ordinance for sewer work in the Hazlewood Ave. section has been adopted by the city council and the city engineer instructed to prepare an ordinance for a sewer in Almaden Drive.

Sacramento, Cal.—City commission adopted resolution building a sewer in alley between Burnett Way and First Ave., from a point 260 feet west of the westerly line of 24th St. to the center line of Lawrence Ave. M. J. Desmond, city clerk.

Bridgeport, Conn.—For building sewers in various streets Board contracts

and supply receiving bids in September; about \$60,000. J. A. McElroy, city engineer.

Pensacola, Fla.—City voted Aug. 16 on issuing \$65,000 bonds for extending and improving the city's sewers.

Thompson, Ga.—For construction of sewers, city voted Aug. 14 \$21,000 bonds.

Davenport, Ia.—City council plans to construct sewers in Blackhawk St., Bowditch St., Second St., and Rohlff St., cost \$2,224.50. Objections heard Sept. 4. Hugo Moeller, city clerk.

Wichita, Kan.—Vernon H. Branch, Wichita, successful bidder for an issue storm sewer bonds, \$175,000.

Paris, Ky.—City sold to the Harris Trust & Savings Bank of Chicago an issue \$20,000 sewer bonds. J. W. Hayden, city clerk.

Battle Creek, Mich.—A. B. Leach & Co., of Chicago, were the successful bidders for an issue \$20,000 sewer bonds. Thos. H. Thorne, city clerk.

Ecorse, Mich.—See "Water Supply."

Muskegon, Mich.—Plan, at about \$15,-300, to build 24-in. sewer in Spring St., from Apple St. to Wood Ave. L. C. Nelson, city engineer.

Ironton, Minn.—Plans soon to call for bids on several blocks addition to its sewer system.

Pascagoula, Miss.—See "Streets and Roads."

Newark, N. J.—Sealed proposals received Sept. 4 for an issue \$1,725,000 sewer bonds, which were approved by Capital Issues Committee. Alexander Archibald, director of revenue and finance.

Brooklyn, N. Y.—E. S. Elwood, secy. state hospital commission, Capitol, Albany, N. Y., will shortly call for bids for sewage disposal plant for Brooklyn State Hospital, Brooklyn. Lewis F. Pilcher, state architect, Capitol, Albany.

North Tonawanda, N. Y.—To vote on an appropriation \$50,000 for new sewer in 16th Ave. Board of public works plans special election.

Rochester, N. Y.—See "Water Supply."

Akron, O.—An ordinance has been passed providing for the issuance of \$12,000 sewage disposal plant bonds. H. N. Seiler is city clerk.

Bremen, O.—Seasongood & Mayer, of Cincinnati, were the successful bidders sewer extension bonds, \$6,000, offered on July 10.

Canton, O.—Approval by the state board of health of the two intercepting sanitary sewers soon to be constructed by the city was given by W. H. Dittoe, special representative of the state board. The east and west intercepting sewers will cost in the neighborhood of \$295,000, according to the official estimate. As soon as the final plans and specifications are received by Service Director DeCorps the city will advertise for bids and work will begin early this fall. City Engineer Sarver.

Mansfield, O.—City Auditor C. H. Rhodes will take bids Sept. 12 for \$20,000 sewer bonds.

Norwood, O.—City considering building 340-ft. 20-in. vitrified tile pipe sewer Norwood Ave., about \$2,600. Allen Kissenger, engr., city hall.

Rocky River, O.—Village Clerk Frank Mitchell receiving bids Sept. 17 for an issue sewer bonds, \$63,000.

Troy, O.—Plans to build sanitary sewer on Court St. from Pennsylvania Ave. to Madison St. R. Hennessey, city engr.

Niles, Okla.—At a recent election it was voted to authorize \$9,500 sewer bonds.

Bethlehem, Pa.—Ordinance introduced in council which provides for the construction of a house sewer on 5th St., between Elm and Locust Sts. Mayor Johnston.

Lovell, Wyo.—Comms. of Sunlight drainage district lets contract in September for drainage work; laying approximately 70,000 ft. drain tile, ranging in size from 21 to 10-in., and in depth from 7 to 11 ft. Cotner & Cotner, engineers.

BIDS RECEIVED AND CONTRACTS AWARDED.

Hamden, Conn.—Sperry Engineering Co., 82 Church St., New Haven, sewer in Dixwell Ave., by Whitney Blackie Co.

Washington, D. C.—Continental Constr. Co., Baltimore, Md., at \$26,480, for sewer at St. Elizabeth's Hospital, by U. S. Govt. S. G. Hopkins, assistant

secretary, Interior Department, 18th and F Sts. N. W.

Carrollton, Ga.—See "Streets and Roads."

Duluth, Minn.—John Hedberg, for constructing storm sewer in Eleventh Ave. east from 9th St. to 10th St., and in 10th St., from Eleventh Ave. east to Twelfth Ave. east, at a cost of \$2,258.

Virginia, Minn.—Christopherson Co., Duluth, for building sewers in 3d St. and 3d Ave.; about \$13,470.

North Bergen, N. J.—Nolan & Horn-ung Construction Co., 143 Summit Ave., West Hoboken, at \$7,458, for sewer in 30th St. Comrs. of North Bergen town-ship, Patrick A. Brady, clk.

Cleveland, O.—F. A. Fredericks, Tris-kett road, at \$3,433, and to M. Nichols & Son, 2061 E. 125th St., at \$1,519, for sewers in Clarkstone road and Ella Ave. Commissioner of purchases and supplies. Robt. Hoffman, engineer.

Cleveland, O.—E. W. Steyding, 17404 Woodford road, Lakewood, O., at \$1,641, for drainage system in Broadview road. Commissioners of Cuyahoga county. E. G. Krause, clerk. W. A. Stinchcomb, engineer.

Turtle Creek, Pa.—Mancala Constr. Co., 1507 Lang Ave., Pittsburgh, Pa., at \$3,200, for sewer in Penn Ave. Boro. council. Harrop, Hopkins & Taylor, en-gineers, Home Trust bldg., Pittsburgh.

Williamsport, Pa.—E. C. Williams, 150 W. 4th St., Williamsport, sewage dis-posal plant, \$15,000. E. Jefferson St., by the National Silk Dyeing Co., 1300 E. Jefferson St. Wm. E. Fryor, Hoboken, N. J., engineer.

Seattle, Wash.—Wenzler & Ward, 2705 First Ave., by Architect S. E. Sonnen-sen, Downs Block, for the installation of sewers and water works, including the specified fire protection system at the 5-acre plant of the Gulowsen-Grei Engine Co. now under construction at Salmon Bay, cost \$21,000.

Kenosha, Wis.—Chris Johnson for sewers in Ann St. from Lincoln to Selma Ave., approx. 280 ft. 15-in. sewers, 280 ft. 12-in. and 2 concrete manholes. P. J. Hurtgen, engineer.

Plymouth, Wis.—W. F. Ribbens, May-ville, for storm sewer, \$3,932. Jerry Don-ohue, engr., Sheboygan.

Racine, Wis.—Hans C. Hansen, 2352 Kinzie, Racine, for sewer and water connections on Blaine Ave.

Waukesha, Wis.—Frank Kahle for sewers. City Engr. Wm. C. Powrie.

London, Ont.—John McMurphy, Queen's Ave., general contract for con-struction of sewer system for the city council, at a cost of \$5,000. H. A. Brazier, engineer.

WATER SUPPLY

Montgomery, Ala.—Additional well for water supply will be sunk at army camp, \$3,000. Capt. M. G. McDonald, quartermaster.

Martinez, Cal.—City lets contract early in September for building water dis-tributing system, including 1,500,000 gal. reinforced concrete reservoir; 2 tripled pumps, 34,000 ft. c. i. pipe, 6,900 ft. screw pipe, 139 gate valves and 50 ft. standpipe; about \$130,000. Olmstead & Gilleden, Hollingsworth Bldg., Los An-geles, engineers.

Washington, D. C. (Bureau of Foreign and Domestic Commerce, Department of Commerce)—A firm in India wishes to purchase 12 passenger elevators of 4 or 5-passenger capacity, to be operated by electric motor on 440 volts direct current, and 4 or 5 motor-pump sets for water on about a 150-ft. head, with discharg-ing capacity of 4,000 gallons per hour, to operate on 220-volt D. C. Terms of pay-ment, cash against shipping documents. Correspondence may be in English. Ref-erence. Refer to Opportunity No. 27316.

Pensacola, Fla.—See "Miscellaneous."

Pensacola, Fla.—City voted Aug. 16 on issuing \$30,000 bonds for extending and improving the water system.

Mt. Carmel, Ill.—Will install 50 or more service connections. P. Barnhard, manager.

Evansville, Ind.—Board of work ac-cepted the plan submitted by Charles Striethof, superintendent of the water works for the installation of a booster pump and pressure tank on the south-west corner of Ohio St. and McDowell Ave. The approximate cost will be \$5,-

460. This cost includes a second pump to be used in the event that one pump fails to operate. This plans for supplying water to Forest Hills and adjacent territory.

Panama, Ia.—Citizens Aug. 12 defeated the proposition to issue \$10,000 water works system bonds. Joseph F. Appold, clerk.

Ecorse, Mich.—Plans to vote shortly on \$50,000 water and sewer extension bonds.

Sault Ste. Marie, Mich.—An election will be called to vote on issuing \$50,000 water works bonds.

Duluth, Minn.—An ordinance introduced which provides for an appropriation of \$4,300 for the purchase of meters for the water and gas department.

Duluth, Minn.—Water and gas mains were ordered extended in Tacony St., from the end of the mains in Fifty-ninth Ave. west to connect with mains 337 feet east of Sixty-first Ave. west.

Great Falls, Mont.—Advertisement for bids to furnish the pumping plant with a drainage system was ordered by city council for Sept. 3.

Buffalo, N. Y.—The following bonds have been sold to the Bankers Trust Co. of Buffalo: Water, \$250,000; voting machine, \$38,750; grade crossing, \$20,000. Chas. M. Heald, commissioner of finance.

Newburgh, N. Y.—City, at election on Aug. 21, voted \$610,000 to purchase the Plattkill water supply.

Rochester, N. Y.—The Equitable Trust Co., of New York, was the successful bidder for the following notes: Water, 1 month, \$50,000; sewer, 8 months, \$50,000; water, 8 months, \$50,000. H. D. Quinby, city comptroller.

Middletown, O.—The following bonds recently authorized were sold to the Industrial Commission: Water works improvement, \$20,000; street improvement, \$9,000. John Kunz, clerk, board of commissioners.

Sandusky, O.—The city manager was authorized to advertise for bids for the laying of the 12-in. water main in the south end.

McKeesport, Pa.—It is stated that an election to be held to vote \$175,000 water works and fire protection bonds.

Providence, R. I.—Council passed a resolution authorizing a loan of \$100,000 for the water supply board to finance the building of the new dam across the Maswansicut river and for other purposes. Mayor Gainer.

Electra, Tex.—The attorney general has approved an issue of water works warrants, \$25,000.

Ogden, Utah.—A large reservoir and power house on the north fork of the Duchesne river in the Uintah basin is to be constructed according to H. H. Strauss, a consulting engineer of Chicago, who formerly supervised the merchants' light system and the power house at Riverdale. The proposed reservoir is to have a capacity of 25,000 acre feet and a six-mile conduit, which is to carry the water to a point near Stockmore. A maximum of 8,000 horsepower will be developed. No statement has been made as to whether it is an independent concern or a part of the Utah Light & Power Co.

Spanish Fork, Utah.—Water improvement bonds, \$40,000, authorized at an election July 9 has been sold to Sweet, Causey & Foster & Co., of Denver. D. C. Robertson, city recorder.

Montpelier, Vt.—City council has authorized J. J. Glinney, water commissioner, to purchase a new boiler for the pumping station. Cost, about \$600.

Meeteetse, Wyo.—Citizens will be called upon Sept. 24 to vote on the proposition of issuing \$7,500 bonds for improvement of the water pumping plant of the city.

St. John, N. B.—City council, at a cost of \$80,000, considers extension of the water system. G. Hare, city engr.

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

Phoenix, Ariz.—*Allis Chalmers Manufacturing Co., for the purchase of three centrifugal pumps, motors and equipment. Mayor Peter Corpstein. City Manager V. A. Thompson.

Crosby, Minn.—*Pastoret Const. Co., 511 Lyceum Bldg., Duluth, for building water works extension, involving 14,680 ft. 6-in., 9,990 ft. 4-in. and 547 ft. 8-in. c-l. pipe, by city.

Duluth, Minn.—*Simon Johnson, 818 E. Third St., this city, for laying gas and water mains in Norton's Fairmount Park Addition, at \$3,516.

Raleigh, N. C.—*Tucker & Laxton, Realty Bldg., Charlotte, for water works improvements, involving installation of 2 pumps, additional filter system, 24-in. pipe line, etc., about \$50,000.

Fort Worth, Tex.—*W. T. Waggoner, First National Bank Bldg., by city, for building pump house, about \$52,387.

Colfax, Wash.—*E. K. Lloyd, for building monolithic concrete pumping station, 32x66 ft. in size, at a cost of \$2,895, by city council.

Seattle, Wash.—See "Sewerage."

Cashton, Wis.—*Des Moines Bridge & Iron Co., 930 Tuttle St., Des Moines, Ia., by village, for building and erecting 80,000 gal. steel tank and tower to replace 2 wooden tanks and towers, \$11,985.

Weston, Ont.—*Geo. Moogk, of Weston, for filter buildings and filter bases, value about \$7,000. James, Loudon & Hertzberg, Toronto, consulting engrs.

LIGHTING AND POWER

Porterville, Cal.—In view of the practical certainty of an early raise in the price of electrical energy, an added impetus has been given to plans already under consideration for a municipal light and power plant. Instructions have been given by the city council to F. W. Pease, city engineer, for a detailed estimate of the cost of installation of a distribution system and generating plant.

Monticello, Fla.—Election held Aug. 6 upon issuance of \$17,500 of municipal bonds for establishing electric light and power plants carried. J. M. Johnson, mayor.

Marshallville, Ga.—Application has been made for incorporation of Big Indian Power Co., to generate electricity for manufacturing and lighting purposes; capital stock is \$30,000, with privilege of increasing to not exceeding \$50,000. H. A. Murph, J. J. Murph and F. M. Mullino.

Sadorus, Ill.—Village voted Aug. 12 in favor of issuing bonds aggregating the sum of \$6,500 for the purpose of acquiring an electric light, heat and power plant.

Charlotte, N. C.—The city commissioners were requested by the public health service to place lights at the following street corners: Alexander and 3d Sts., Davidson and 3d, Davidson and 1st, Stonewall and Davidson.

Bloomdale, O.—Citizens voted Aug. 13 on issuing electric light plant bonds, \$15,000. Wm. T. Markle, corporation clk.

Carney, Okla.—The question of issuing \$4,500 gas plant bonds was carried at the election held on July 30.

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

Pittsburgh, Pa.—The *Westinghouse Electric & Manufacturing Co. for three 15,000-kw. generators for a generating plant which will cost approximately \$5,000,000, to be used in connection with the Government ordnance plant now being built in Neville Island by the United States Steel Corporation, which acted for the United States Government.

FIRE

Williamantic, Conn.—This town may shortly vote \$5,000 on further motorization of the fire department.

Methuen, Mass.—City sold fire house, \$8,500, and department equipment bonds to Merrill, Oldham & Co., of Boston. Bonds were offered on June 12. B. Clinton Burwell, city treasurer.

Northfield, Mass.—Town recently appropriated \$400 to purchase new fire hose.

Hudsonville, Mich.—Contemplates the purchasing of a chemical engine.

Adams, N. Y.—Village sold to H. A. Kahler & Co., of New York, an issue of village hall and fire house bonds, \$10,000.

Hudson, N. Y.—Receiving bids for the sale of fire department bonds, \$3,000, has been extended from Aug. 20 to Sept. 17.

Dennison, O.—Plans to purchase new

motor hose and chemical truck. Cost limited to \$1,400.

Ingram, Pa.—The purchase of 500 ft. of 2½-in. fire hose was recommended by the fire committee of the council.

McKeesport, Pa.—See "Water Supply."

Souderton, Pa.—Plans to purchase additional fire apparatus.

Roanoke, Va.—Plans for motorizing the fire department as the best possible solution of the man-power problem will probably be submitted to the next city council soon after it is organized.

Prairie du Chien, Wis.—Mayor James Harris, Fire Chief Millinger and the committee on fire were authorized to investigate the need of a fire truck motor.

Bluefield, W. Va.—Erection of a new fire station on South St., in South Bluefield, has been proposed.

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

Bessemer, Ala.—*American La France Fire Engine Co., for a new fire truck. J. I. Reeder, Chief.

Battle Creek, Mich.—*American La France Co., for the purchase of a fire truck; ladder to be 75-ft. type.

Mt. Clemens, Mich.—*American La France Fire Engine Co., for a motor fire service truck.

BRIDGES

Decatur, Ill.—P. T. Hicks, Macon, county superintendent of highways, Sept. 3, receiving bids for construction of a flat-top, reinforced concrete bridge for spanning a ravine in the highway leading east from Lost Bridge along the old Terre Haute-Springfield trail. The contract will include some grading, cost approximately \$1,800, which includes the grading.

Petersburg, Ind.—At a meeting of the board of county commissioners an order was passed asking the county council to appropriate at its September meeting \$45,000 for new bridges in Pike county, of which \$25,000 is to be used in building bridges over the Flat creek dredge ditch.

Davenport, Ia.—Definite plans for erecting a new and permanent bridge over Duck creek on North Brady St. were made by the street and paving committees of the city council. City Engineer Roscoe E. Sawistowsky will prepare plans and specifications for a concrete arch; cost about \$12,000. Plans for building a temporary bridge over Blackhawk creek in West Davenport were also made.

Hartford, Mich.—It is proposed that an election be called to vote \$15,000 concrete bridge bonds.

Great Falls, Mont.—Cascade county receiving bids in September for building 2 reinforced concrete arch bridges over Missouri River, one on First Ave., N., 970 ft. long, 42 ft. wide, with 8-ft. sidewalks, other on Tenth St., 1,200 ft. long, 30-ft. roadway with 7-ft. sidewalks. Toltz Eng. Co., 1410 Pioneer Bldg., St. Paul, Minn., engr.

Mt. Holly, N. J.—Bids received early in September by Burlington county and Camden county, Camden, for building concrete arch bridge over Pensauken Creek on Moorestown Pike, between Camden and Burlington counties, involves 180 piles and 622 cu. yds. concrete, etc. J. Logan, engr., Burlington county; J. J. Alberton, engr., Camden county.

Dayton, O.—A new one-span concrete bridge over Wolf creek at Broadway is one of the improvements sought by the Dayton View Improvement Association, and such a move on the part of the city will be strongly urged after the war.

Defiance, O.—Defiance county auditor, C. O. Decker, will take bids Sept. 5 for an issue \$8,500 bridge bonds.

Jay, Okla.—Delaware county defeated the following bonds at an election on Aug. 6: \$70,000 Bridge, \$30,000 road. Claude Thompson, county clerk.

Falls, Pa.—Bids rejected Aug. 13, by G. A. Schreiner, supt. public grounds, Capital Bldg., for building bridge over north branch of Susquehanna river. Will readvertise. Paxson & Morgan, Second National Bank Bldg., Wilkes-Barre, Pa., engr.

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

Napa, Cal.—Harry Thorsen, by board of supervisors of Napa county, for building a concrete bridge in Pope valley; cost, \$1,150.

Bradentown, Fla.—E. W. Parker, Tampa, Fla., by cities of Bradentown and Palmetto to construct bridge over Manatee River; 5,352 ft. or pile trestle or wooden approaches; one Scherzer lift span complete as designed by Scherzer Rolling Lift Bridge Co., \$54,810. Mayor Glazier.

Louisville, Ill.—M. Frazier, this city, for constructing the Jarvis bridge between luka and Xenia twps., Marion and Clay counties, at \$1,040.

Macomb, Ill.—Harry C. Holmes, this city, for constructing Sheldon's Grove bridge in Hickory Twp., Schuyler county, at \$4,410.

Momence, Ill.—H. Halpin, this city, for constructing the Schock culvert in Pembroke Twp., Kankakee county, at \$1,409.

Patoka, Ill.—T. E. Irvin, this city, for constructing the following bridges: Allison and Wheeler bridges in Patoka typ., Marion county, at \$1,925; the steel school bridge in Carrigan twp., at \$1,262.

Butler, Ind.—M. A. Butler, of Spencer-ville, for building bridges, Bridge No. 1, in Newville township, \$323; No. 2, in Franklin township, \$715; bridge No. 3, to be located in Troy township, \$635; Bridge No. 4, situated in Richland township, \$1,045. All will be concrete construction. County comrs.

Layton, N. J.—Winfield R. Poyer, at \$1,034, erecting concrete bridge, by Sussex county board of freeholders.

Elma, N. Y.—Meyer & Meyer Depew, low bidder building reinforced concrete arch bridge, two 60-ft. spans, over Buffalo creek, on Euclid Rd. About \$10,000.

Elkins, W. Va.—Duncan Construction Co., Marlinton, W. Va., for constructing three concrete bridges, arch and slab types, 15 and 12 ft. spans respectively, and one culvert, at \$4,595.

Manitowoc, Wis.—Adolph Cherney, Mishicoit, for building bridge, Frank Muth, county highway commissioner.

Lansdown, Man.—O. W. Smith Construction Co., 5228 Seventh St., Regina, for reinforced concrete bridge for the municipal council.

MISCELLANEOUS

Bridge Junction, Ark.—H. D. Tomlinson, president of the board of directors of the San Francis Levee district, will receive sealed bids Sept. 17 for \$200,000 5½ per cent. 30-50-year optional levee bonds.

California.—State building bonds to the amount \$100,000 has been purchased by the state board of control. F. W. Richardson, state treasurer.

Crescent City, Cal.—The clerk of Del Norte county will receive sealed bids Sept. 10 for \$200,000 5 per cent. semi-annual 20-year county bonds.

Los Angeles, Cal.—Los Angeles county flood control district, H. J. Leland, county clerk, taking bids Sept. 3 for an issue flood control bonds, \$2,225,000.

Denver, Colo.—Cantonment Division, War Dept., Washington, D. C., plans to build hospital wards, about \$70,300.

Washington, D. C. (Bureau of Foreign and Domestic Commerce, Department of Commerce)—A firm in Siberia, intending to establish an electric power plant, desires to purchase electric and steam engines, dynamos, armatures, etc. Quotations should be made f. o. b. Terms of payment will be cash. Correspondence should be in Russian. Refer to Opportunity No. 27,324.

Washington, D. C. (Bureau of Foreign and Domestic Commerce, Department of Commerce)—A firm in England desires immediately for the British market American steel dies for the drawing of larger cables and wire. References are given. Refer to Opportunity No. 27,319.

Washington, D. C.—The war department has announced buildings will be erected at Camps Devons, Funston, Lewis and Meade for the instruction of non-commissioned officers during inclement weather.

Washington, D. C.—The war department authorizes the following state-

ment: Laundries are to be provided in all of the principal camps and cantonments. The average cost of each will be \$150,000. The expenditure of \$5,754,990 for this purpose has been authorized. The work will be done by the construction division. Power to operate the laundries will be supplied by special power houses, which will be erected at the same time. The buildings in each of the larger camps will cost \$176,000, while \$130,688 is provided for each of the smaller camps.

Pensacola, Fla.—United States Government will build one hundred houses south of Bayou Grande, between the electric line and the paved road, for housing Government employees. Arthur Pew, projecting engineer, has surveyed the land.

Pensacola, Fla.—Pensacola Shipbuilding Co. will erect hundreds of houses for its employees upon the California bungalow style, of four, five and six rooms, of varied style. Attention will be given to parkways, water and all modern conveniences, cost approximately \$800,000.

Chicago, Ill.—City council adopted an ordinance and plans election in November to vote on ordinance which orders the questions of a subway and of unification of these lines with the surface and elevated lines, carries the following provision: cost aggregating \$2,500,000.

Laporte, Ind.—County council will be requested to appropriate \$10,000 for building pest house.

Boston, Mass.—Bureau Yards & Docks, Washington, D. C., plans extension and alterations to machine shops, Specification 3318, about \$770,000.

Chatham, Mass.—Bureau Yards and Docks, Washington, D. C., plans five air stations, Specification 3319, about \$38,000.

Marks, Miss.—H. D. Glass, chairman of the Commissioners of the Newson Lake drainage district, will receive bids Sept. 5 for \$149,772 drainage bonds.

Newark, N. J.—Sealed proposals will be received by the director of revenue for the purchase of tax anticipation and finance, A. Archibald, Sept. 4, 1918, bonds of 1918 of the city in the amount of \$700,000.

Adams, N. Y.—See "Fire Equipment."

Buffalo, N. Y.—See "Water Supply."

Glen Cove (L. I.), N. Y.—Dr. J. B. Connolly, Health Officer of the city, has recommended to the city council the question of a city hospital within the limits of Glen Cove City.

Hot Springs, N. C.—Cantonment Division, War Dept., Washington, D. C., plans to build extension to Mt. View Hotel, to be used for hospital, about \$80,000.

Sanford, N. C.—Sealed bids received Sept. 10 for an issue of funding bonds, \$15,000. E. M. Underwood, chairman finance committee.

Bedford, O.—Village clerk, J. O. Cross, taking bids Sept. 19 for an issue public building bonds, \$7,000.

Canton, O.—R. P. Blake, special representative of the housing bureau of the U. S. Department of Labor, after investigating the housing condition of this city, has announced that approximately 2,000 homes are needed here immediately, and between \$2,560,000 and \$3,000,000 will be needed from the Government for construction.

New Concord, O.—Sept. 16 village clerk, W. C. Trace, wants bids on an issue deficiency bonds, \$5,000.

New Philadelphia, O.—City Auditor Attie L. B. Williams will take bids Sept. 14 for an issue special assessment bonds, \$11,550.

North Baltimore, O.—Debt extension coupon bonds to the amount of \$10,000 will be received by Village Clerk L. W. Biehler, Sept. 7.

Tiffin, O.—Seneca, Wood, Hancock and Crawford county commissioners have decided to accept the invitation of the Lima district in erecting and financing a tuberculosis hospital for nine counties. According to an estimate the cost of an addition that must be added to the hospital, which already exists at Lima, to accommodate patients from four extra counties will be \$100,000.

Portland, Ore.—Awards were made Aug. 15 by the city council for the purchase of \$500,000 of 5 per cent delinquent assessment collection bonds issued by the city. The major portion, \$475,000, was awarded to the Lumbermen's Trust Co. on its bid of 101.40; \$5,000 went to the Security Savings & Trust Co. on a premium bid of 2.93 per cent for bonds maturing in 7 years and \$20,000 maturing in 5 years to the same in-

stitution on a bid of 2.10 per cent premium.

Midland, Pa.—Secretary borough council, M. C. Donohue, receiving bids until Sept. 3 for an issue of borough bonds, \$30,000.

Providence, R. I.—As a solution of the street car difficulties arising from the lack of transportation facilities to and from Field's Point, the Government has offered to pay one-half the cost of the construction of an extension to the Washington Park line down to the city dock. It is estimated that it will cost \$40,000 to build the extension and the Government has expressed its willingness to meet \$20,000 of this outlay.

Nashville, Tenn.—The National City Co. of New York has been awarded an issue of 6 months' state notes, \$1,000,000.

Seattle, Wash.—County Engineer Sam Humes has submitted to the board of county commissioners the plans covering the draining of 800 acres of land included in the triangular strip of land that is overflowed each winter where Cherry Creek empties into the Snoqualmie River. It is planned to straighten out the bed of Cherry Creek and cross ditch the different tracts included in the district. The bulk of the property is owned by the Carnation Stock Farms Co. It is estimated the cost will be \$10,000.

Tonasket, Wash.—A proposition is on foot looking toward the taking over of the Marvin Chase project west of Tonasket and the enlargement of that project to cover immediately 12,000 acres of land in Horse Spring coulee and Whitestone flat. A committee was appointed to lay out definite plans with that end in view. The present Whitestone project covers approximately 2,000 acres. Under the new plan all of the present ditch will be taken over by the district and the whole 12,000 acres of land will be irrigated at once.

Guayaquil.—The Ecuadorian consul general at New York states that tenders are desired for the construction of a municipal building at Guayaquil. The bids must be in perfect accordance with the plans and general specifications, copies of which will be supplied to the bidders by the consul general at 17 Battery Pl., New York.

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

Washington, D. C.—*Edward K. Kenno, of Syracuse, N. Y., for the construction of houses at Watertown, N. Y., which will provide accommodations for 300 families, the department of labor.

Chelsea, Mass.—*W. Crane, 1 Hayward St., Boston, at \$7,376 for addition to subsistence building, Bureau yards and docks, navy dept., Washington, D. C.

Portsmouth, N. H.—*Weiss Constr. Co., 40 Court St., Boston, Mass., at \$68,841, 100 days, intake tunnel and foundation, Bureau yards and docks, navy dept., Washington, D. C.

Cape May, N. J.—The following bids received Aug. 19 for addition to naval station: (1) price and time for work complete; (2) amount and time deducted from (1) using spread footing, as called for in paragraph 42, in lieu of pile and concrete footing as called for by drawings and specifications; (3) price added or deducted from (1) for each pile in excess of or less than number shown on drawings based on length of 30 ft. from point to cut off; (4) price added or deducted from (1) for each lin. ft. of pile in excess of or less than length specified above; (5) price added to (1) for each test pile; (6) amount and time deducted from (1) if foundations for all buildings are made concrete spread footings in lieu of pile and concrete footings as called for: From Frymlier & Hannan, 25 W. 45th St., New York City, (1) \$204,198 (120 days), (3) \$20, (4) .80c., (5) \$30; Cramp & Co., 801 Denkla Bldg., Phila., Pa., (1) \$221,817 (120 days), (2) deduct \$3,252, (3) add \$22, (3) deduct \$15, (4) add 75c., deduct 50c., (5) \$35, (6) deduct \$4,959; Easton, Brown & Simpson, 90 West St., New York City, (1) \$318,773 (120 days), (2) deduct \$1, (3) \$20, (4) deduct 80c., add 60c., (5) \$45, (6) \$1. Bureau yards and docks, navy dept., Washington, D. C.

Troy, N. Y.—*Automatic Registering Machine Co. of Jamestown by the board of contract and supply for supplying 17 additional voting machines to be used this fall. The machines will cost \$600 apiece.

Philadelphia, Pa.—Raisler Heating

Co., 129 Amsterdam Ave., New York City, (1) \$123,407, (2) \$68,049 (100 days), (3) \$56,604 (75 days), (4) deduct \$650; L. Wanher, Jr., 1723 Ludlow St., Philadelphia, Pa., (1) \$128,700 (100 days), (2) \$74,800 (100 days), (3) \$54,500, (4) \$4,000 (5 days); Gillis & Gehagen, 537 West Broadway, New York City, (1) \$143,779

(100 days), (2) \$72,779 (100 days), (3) \$71,476 (78 days), (4) \$310. Bidders boilers and heating plant received Aug. 19 for emergency barracks navy yard here: (1) price and time for work, complete; (2) price and time for extension to boiler plant, including boilers, stack and all equipment; (3) price and time for

steam lines and heating systems complete exclusive of work at boiler plant; (4) under this item bidders are requested to state reduction in price and time if alternative of increasing height of one of existing stacks is adapted in lieu of new stack. Bureau yards and docks, navy dept., Washington, D. C.

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS.				
Pa., Bethlehem	5 p.m., Sept.	2.. Constructing reinforced concrete pavement.....	City Engineer.
Mass., Boston	noon, Sept.	3.. Paving with recut granite block and wood block.....	Thos. F. Sullivan, Comr. of Public Works.
Ia., Davenport	2 p.m., Sept.	3.. Grading on ten streets.....	J. W. Crowley, Chrm. Board of Public Works.
Tex., Houston	10 a.m., Sept.	4.. Paving approaches to bridge.....	County Engineer.
Minn., St. Paul	10:30 a.m., Sept.	9.. Grading and improving a number of streets.....	H. W. Austin, Pur. Agent.
Minn., St. Paul	10:30 a.m., Sept.	9.. Curbing on two streets.....	H. W. Austin, Pur. Agent.
D. C., Washington	Sept.	10.. 105 10-ton gasoline road rollers; 22 scarifiers (Proposal No. 1092).....	General Engr. Depot, U. S. Army, 1438 U St.
SEWERAGE.				
N. Y., Auburn	8 p.m., Sept.	3.. 8-inch tile sanitary sewer and connections.....	Jos. J. Tehan, Acting City Engineer.
Minn., St. Paul	10:30 a.m., Sept.	9.. Constructing sewer	H. W. Austin, Pur. Agent.
Minn., Taconite	8 p.m., Sept.	11.. Constructing sewer system.....	M. R. Cundy, Village Clerk.
D. C., Washington	Sept.	6.. 80,000 ft. two conductor No. 6 B. & S. gauge cable Proposal No. 1091).....	General Engr. Depot, U. S. Army, 1438 U St.
BRIDGES.				
Mass., Boston	noon, Sept.	3.. Rebuilding bridge in West Roxbury.....	Room 511. City Hall Annex.
N. Y., Poughkeepsie	1:30 p.m., Sept.	7.. Constructing concrete arch bridge.....	C. R. Cornwell, Co. Supt. of Highways.
N. J., Newark	2 p.m., Sept.	9.. Replanking bridge	County Engineer.

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STREETS AND ROADS.

San Francisco, Cal.—The Sacramento Northern Railroad, the successor to the Northern Electric Co., filed an application with the railroad commission for authority to spend part of the proceeds from the sale of \$5,500,000 of its 5% 20-year first mortgage bonds to pave parts of Second, B, Sutter and Bridge Sts., in Yuba City, after removing its tracks on those streets.

Keokuk, Ia.—The Hancock county board of supervisors has appointed a special committee to inspect the Hamilton-Nauvoo Lake Shore Blvd., with a view to action to put it in good repair again.

Beverly, Mass.—See "Sewerage."

Franklin, Neb.—City Clk. Henry Plank soon receives bids for sidewalks on various streets.

Havelock, Neb.—For paving dist. No. 17, county clerk will ask for bids.

Reno, Nev.—In anticipation of the tremendous growth of both local and interstate traffic upon the route of the Lincoln Highway, plans have just been announced by the Nevada state highway commission covering the relocation of the highway between Reno and Carson City, which will eliminate the seven dangerous railroad crossings which now menace travel between these points. It will be necessary to construct approximately 20 miles of new road. The cost of the work according to the estimates will be \$82,000. But one railroad crossing will remain when the construction is completed and this will be so situated as to afford an open view of the tracks for a considerable distance in both directions before crossing. Details covering the work of improvement have just been completed following a personal trip of inspection over this section of the Lincoln Highway by all of the members of the State highway commission, accompanying Field Secretary H. C. Ostermann of the Lincoln Highway Association. Actual construction will be started at the earliest opportunity.

Clifton, N. J.—A notice of intention will be published calling attention to the proposed laying of sidewalks in Arlington Ave. and the laying of crosswalks and sidewalks in Washington Ave.

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Hackensack, N. J.—Bergen county sold to J. S. Rippel & Co., of New York, an issue of road improvement bonds, \$28,000. James N. Harkness, clerk, board of freeholders.

Asheville, N. C.—Ordinance was passed on Aug. 22 providing for the issuance of street bonds of \$12,000 by the town of Kenilworth, to grade, pave and otherwise permanently improve Kenilworth road from the Swannanoa Drive to the extension of Caledonia road. The extension of Caledonia road from Kenilworth road to the intersection of Reynolds terrace. J. G. Adams, attorney for the town of Kenilworth.

Chillicothe, O.—Ordinance which provides for the issuance of \$4,000 High St. improvement bonds has been passed by city council.

Portland, Ore.—An ordinance proposing the opening of Moody St. from Woods St. to Caruthers St. has been referred to the city attorney.

Salem, Ore.—The state will complete the Comstock-Leona section of the Pacific highway in Douglas county. State Highway Engineer Nunn announced, because of financial troubles that have been encountered by the contractors who were awarded the work. The estimated cost of the project is \$58,000, the stretch being more than 4 miles of grading and macadam. The project is 35 per cent. completed.

Newport, Tenn.—The State highway

commission of Tennessee has appropriated \$50,000 for the completion of the portion of the Dixie highway in Cocke county. There is also an amount to be raised by Cocke county in order for the appropriation to go into effect. The highway, beginning at Knoxville and extending as far as Asheville, N. C., includes Straw Plains, Danbridge, Newport, Hot Springs, Marshall, Mars Hill and Weaverville, the first three of which are in Tennessee.

Houston, Tex.—County commissioners voted to order bids for the paving of approaches to the Harrisburg bridge.

Burnaby, B. C.—Council considering construction of macadam pavements, cost \$10,000. Mr. Milne, engr.

Brandon, Mass.—The construction of roads in the near future are considered by the Municipality of Wallace and neighboring municipalities.

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

Beverly, Mass.—*E. C. Buckle, for the construction of 317 feet of wall at Malt Hill on Hale st. at the Farms, a part of the program for street improvements at the place, \$2.27 a linear foot. City council public service committee.

Portland, Ore.—Warren Construction Co., bitulithic redress pavement in roadway at \$1.70 per sq. yd., \$6,199.70, only bidder, Aug. 21, for the improvement of Sherlock Ave., from the northwestern

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NEW YORK CITY

Sacramento, Cal.—Proposals opened Aug. 5, 1918, for constructing a State highway in Merced county, Division VI, Route 18, Section A. Materials furnished by the State are as follows: Reinforcing steel, corrugated metal pipe, Portland cement, sand and coarse aggregate, \$62,727.85.

Items and Quantities.	Engineer's Estimate.		Jas. E. Johnston, Tracy.		C. C. Laiblin, Manteca.		Geo. R. Daley, San Diego.	
	Bid.	Amount.	Bid.	Amount.	Bid.	Amount.	Bid.	Amount.
Excavation (ordinary), 39,000 cu. yds.	\$0.60	\$23,400.00	\$0.90	\$35,100.00	\$0.90	\$35,100.00	\$1.00	\$39,000.00
Excavation (borrow), 9,400 cu. yds. ....	.75	7,050.00	1.05	9,870.00	1.45	13,620.00	1.00	9,400.00
12-in. corr. metal pipe, 628 lin. ft.	1.00	628.00	1.00	628.00	1.00	628.00	1.50	942.00
18-in. corr. metal pipe, 228 lin. ft.	1.10	250.80	1.20	273.60	1.50	342.00	2.00	456.00
24-in. corr. metal pipe, 74 lin. ft.	1.30	96.20	1.50	111.00	2.00	148.00	2.50	185.00
Portland cement concrete, class "A" (culv. & mons.), 381 cu. yds.	14.00	5,334.00	16.00	6,096.00	20.00	7,620.00	20.00	7,620.00
Portland cement concrete, class "A" (pavement), 11,700 cu. yds.	4.00	46,800.00	6.00	70,200.00	6.00	70,200.00	7.75	90,675.00
Moving & resetting property fences, 4 mi.	105.00	420.00	150.00	600.00	225.00	900.00	500.00	2,000.00
Guard rail, 900 lin. ft. ....	.60	540.00	1.00	900.00	1.25	1,125.00	1.50	1,350.00
Monuments (hauling & setting), 74, each.	1.00	74.00	2.00	148.00	2.00	148.00	1.50	111.00
Net total		\$84,593.00						
Contingencies 15%		12,688.95						
Totals		\$97,281.95		\$123,926.60		\$129,841.00		\$151,739.00

Sacramento, Cal.—Proposals, opened Aug. 5, 1918, for constructing a State highway in Santa Barbara county, Division V, Route 2, Section F. Materials furnished by the State are as follows: Portland cement, sand and coarse aggregate, reinforcing steel, \$4,609.06.

Items and Quantities.	Engineer's Estimate.		J. P. Hunter, Los Angeles.		F. F. Moore Co., Santa Barbara.	
	Bid.	Amount.	Bid.	Amount.	Bid.	Amount.
Canada del Refugio Bridge, entire structure complete.		\$6,981.00		\$15,500.00		\$10,995.00
Alterations:						
Portland cement conc., class "A", for abutments, added or omitted, cu. yd.			15.00		16.00	
Portland cement concrete, Class "C" for piers, added or omitted, cu. yd.			15.00		15.50	
Wooden piling in place, added or omitted, lin. ft.			1.00		.50	
Net total		\$6,981.00				
Contingencies 25%		1,745.25				
Totals		8,726.25		\$15,500.00		\$10,995.00

Sacramento, Cal.—Proposals, opened Aug. 5, 1918, for constructing a state highway in Colusa county, Division III, Route 7-15, section A-B.

Items and Quantities.	Engineer's Estimate.		Clark & Henery Const. Co., Sacramento.		Raisch Imp. Co., San Francisco.	
	Bid.	Amount.	Bid.	Amount.	Bid.	Amount.
Asphalt wearing surface, 10,900 sq. yds.	\$0.60	\$6,540.00	\$0.95	\$10,355.00	\$0.947	\$10,322.30
Net total		\$6,540.00				
Contingencies, 15%		981.00				
Totals		7,521.00		\$10,355.00		\$10,322.30

Sacramento, Cal.—Proposals, opened Aug. 5, 1918, for constructing a state highway in Monterey county, Division V, Route 2, Section G. Materials furnished by the State are as follows: Reinforcing steel, corrugated metal pipe, Portland cement, sand, sand and coarse aggregates for concrete.

Items and Quantities.	Engineer's Estimate.		F. C. McIntire, Stockton.	
	Bid.	Amount.	Bid.	Amount.
1. Excavation, without classification, 52,000 cu. yds.	\$0.55	\$28,600.00	\$0.75	\$39,000.00
2. 12-in. corr. metal pipe, 1,590 lin. ft.	0.60	954.00	.50	795.00
3. 18-in. corr. metal pipe, 290 lin. ft.	0.70	203.00	.55	159.50
4. 24-in. corr. metal pipe, 310 lin. ft.	0.80	248.00	.60	186.00
5. 36-in. corr. metal pipe, 35 lin. ft.	1.00	35.00	1.00	35.00
6. Portland cement concrete, class "A" (culvs. & mons.), 410 cu. yds.	9.50	3,895.00	14.00	5,740.00
7. Portland cement concrete, Class "A" (pavement), 10,860 cu. yds.	4.20	45,612.00	5.60	60,816.00
8. Pile jetty complete.		1,650.00	2,200.00	2,200.00
9. Rip rap (retaining wall), 600 tons.	2.40	1,440.00	4.00	2,400.00
10. Slope paving, 250 cu. yds.	4.00	1,000.00	6.50	1,625.00
11. Guard rail, 7,000 lin. ft.	0.40	2,800.00	.60	4,200.00
12. Monuments (hauling & setting), 124, ea.	0.50	62.00	.90	111.60
Total				\$117,268.10

Eaton & Smith, San Francisco.		G. S. Bensons & Sons, Los Angeles.		Bates & Borland, Oakland.		Rogers Bros. Co., Los Angeles.	
Bid.	Amount.	Bid.	Amount.	Bid.	Amount.	Bid.	Amount.
1. \$0.89	\$46,280.00	\$0.80	\$41,600.00	\$1.00	\$52,000.00	\$0.79	\$41,080.00
2. 1.00	1,590.00	1.00	1,590.00	.60	954.00	1.00	1,590.00
3. 1.25	362.50	1.10	319.00	.70	203.00	1.10	319.00
4. 1.50	465.00	1.20	372.00	1.00	310.00	1.25	387.50
5. 2.00	70.00	1.50	52.50	1.50	52.50	2.00	70.00
6. 12.00	4,920.00	17.50	7,175.00	20.00	8,200.00	18.00	7,380.00
7. 8.00	86,880.00	5.50	59,730.00	5.75	62,445.00	6.25	67,875.00
8. 2,000.00	2,000.00	4,000.00	4,000.00	3,500.00	3,500.00	4,000.00	4,000.00
9. 5.00	3,000.00	5.00	3,000.00	4.00	2,400.00	7.00	4,200.00
10. 7.00	1,750.00	8.00	2,000.00	4.00	1,600.00	8.00	2,000.00
11. .60	4,200.00	1.00	7,000.00	.50	3,500.00	0.70	4,900.00
12. 1.00	124.00	2.00	248.00	1.00	124.00	3.00	372.00
Totals	\$151,641.50		\$127,086.50		\$134,688.50		\$134,173.50
Net total							\$86,499.00
Contingencies 15%							12,974.85
Totals							99,473.85

line of Nicolai St. to a point 960 feet northwesterly.

Provo, Utah.—Ryberg Bros. and P. J. Moran, bidders for paving three blocks of Academy Ave., from Center St. to Third South St.

Sacramento, Cal.—City commissioner plans improving alley between First

SEWERAGE

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

Portland, Me.—*Aceto & Donatelli, near 76 Anderson St., for sewer in Highland St. Dept. of public works.

Salt Lake City, Utah.—*Gilkerson Construction Co., \$8,380.95, for the construction of a sewer in Westmoreland Pl.

WATER SUPPLY.

Monroe, La.—City granted permission from the capital issues committee, Washington, D. C., to sell bonds for the purpose of constructing a filtration plant.

Baltimore, Md.—City plans to expend for filtration plant \$1,000,000. Walter E. Lee, city engineer.

Cumberland, Md.—Council has been petitioned by a section of the city for extension of water system, stating that it now has no hydrants for use in case of fire.

Roy, N. Mex.—Village receiving bids Sept. 11, water works bonds, \$45,000.

Bayonne, N. J.—William A. Read & Co. are offering at prices to net 4.70 per cent., the unsold balance of \$1,392,000 of city of Bayonne, N. J., 5 per cent. serial water bonds.

Dover, N. J.—The installation of another pumping unit is considered by the water board.

Chickasha, Okla.—City council petitioned to extend city water mains, commencing at Eighteenth and Idaho Ave., running west to 19th St., and thence south to Florida Ave. E. G. Reynolds, city clerk.

Dallas, Tex.—Installation of water and light plant for their own use will be made by the College of Industrial Arts. F. M. Bralley, president.

Mt. Auburn, Tex.—Plans, at about \$12,000, to lay new mains.

Charleston, W. Va.—The West Virginia Water and Electric Co. plans to sell an issue for \$1,250,000 to secure funds for extensively improving plant.

LIGHTING AND POWER.

Los Angeles, Cal.—City council consented in conference with representatives of the public service commission for the use of the power revenue funds, after Sept. 1, to build power plant No. 2 in the San Francisquito canyon; cost, \$1,400,000. The additional plant, with 28,000 h. p. peak load, will furnish all the power needed under the Edison contract and for the rapidly growing needs of the city power bureau.

Brown Mills, N. J.—The application of the Brown Mills Electric Light & Power Co. for permission to take over the plant of the Brown Mills Co. for a consideration of about \$10,000; the approval has been granted by the board of public utility commissioners.

Seven Pines, Va.—A large electric lighting system will be installed in connection with the construction of the large bag loading plant of the Government.

FIRE EQUIPMENT

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

Clifton, N. J.—*Eureka Co. and the U. & G. Co., for 1,500 feet of fire hose.

Clifton, N. J.—*American La France Co., for three pieces of fire apparatus.

BRIDGES.

Peterboro, Ont.—To carry traction line, pedestrian and vehicular traffic a consulting engineer will be appointed by the city council soon to prepare plans and specifications for new reinforced concrete or steel bridge across Otonabee river at Quaker Oats plant; about \$250,000.

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

Vaudreuil, Que.—*J. A. Denis, Vaudreuil Station, the general contract for steel and concrete bridge costing \$25,000 for the municipal council.

MISCELLANEOUS.

Minneapolis, Minn.—City at November election will vote on issuing \$30,000 bonds to establish a municipal milk plant.

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

High Falls, Ont.—*Frazer, Brace & Co., Montreal, by the International Nickel Co. of Canada, Ltd., for construction of concrete dam at Big Eddy, on Spanish river, just above the company's present plant at High Falls. The new dam, which will be about 100 feet high above the present water level, was designed by Henry Holgate, consulting engineer, Montreal. The construction will be supervised by the company's chief engineer, E. Horton Jones. The cost will probably exceed \$1,500,000.



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Sacramento, Cal.—Proposals, opened Aug. 5, 1918, for constructing a state highway in Placer county, Division III, Route 17, Section A. Materials furnished by the State are as follows: Reinforcing steel, Portland cement, sand and coarse aggregates for concrete, Corr. metal pipe. Total, \$15,389.40.

Items and Quantities.	Engineer's Estimate.		Clark & Henery Const. Co., Sacramento.	
	Bid.	Amount.	Bid.	Amount.
Excavation without classification, 5,000 cu. yds.	\$0.80	\$4,000.00	\$1.50	\$7,500.00
24-in. corr. metal pipe, 30 line. ft.	1.00	30.00	2.50	75.00
Portland cement concrete, Class "A" (cul. and man.), 30 cu. yds.	12.00	360.00	20.00	600.00
Portland cement concrete, class "A" (pavement), 2,970 cu. yds.	3.75	11,137.50	6.90	20,493.00
Guard rail, 2,630 lin. ft. ....	.40	1,052.00	1.00	2,630.00
Monuments, 15, each.	1.00	15.00	2.00	30.00
Net total.		\$16,594.50		
Contingencies 15%		2,489.18		
Totals		\$19,083.68		\$23,253.00

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Bids received until September 5, 1918.

Pavement Reconstruction

Pennsylvania State Highway Department, Harrisburg, Pa.—Sealed proposals will be received at said office until 10:00 A. M., September 5, 1918, when bids will be publicly opened and scheduled and contracts awarded as soon thereafter as possible for the reconstruction of the following pavements: 9,550 feet of One Course Plain Cement Concrete in Venango County; 5,600 feet of One Course Plain Cement Concrete in Lancaster County; 2,085 feet and 9,156 feet of One Course Plain Cement Concrete and 404 feet of Hillside Vitri-fied Block in Westmoreland County; 26,112 feet of either Vitri-fied Block on a Concrete

Foundation or One Course Plain Cement Concrete in Fayette County, and 7,783 feet of One Course Plain Cement Concrete and Hill-side Vitri-fied Block on a Concrete Foundation in Warren County. Bidding blanks and specifications may be obtained free and plans upon payment of \$2.50 per set, upon application to State Highway Department, Harrisburg. No refund for plans returned. They can also be seen at office of State Highway Department, Harrisburg; 1001 Chestnut Street, Philadelphia, and 904 Hartje Building, Pittsburgh, Pa. J. D. O'NEIL, State Highway Commissioner.

Bids received until September 4, 1918.

State Highway Work

STATE OF NEW JERSEY
STATE HIGHWAY COMMISSION

Notice is hereby given that sealed bids will be received by the State Highway Commission of New Jersey for the improvement of the following:

State Highway Route No. 6, Mantua-Wood-bury Section, Gloucester County—Bituminous Concrete Pavement (Topeka); estimated 12,666 square yards.

State Highway Route No. 13, Section No. 2, Middlesex and Somerset Counties—Concrete Pavement; estimated 47,800 square yards.

Bids will be opened and read in public at the office of the State Highway Commission, Broad Street Bank Building, Trenton, N. J.,

on Wednesday, September 4, 1918, at 10:30 A. M.

Bids must be accompanied by a certified check for not less than ten per cent. (10%) of the amount of the bid, and must be delivered at the above place on or before the hour named. Copies of standard proposal form will be furnished on application.

Each bidder must accompany his bid with a certificate from a surety company, duly authorized to do business in this State, stating that such surety company will provide said bidder with a bond in such sum as is required in, and in accordance with, the provisions of said specifications, conditioned for the faithful performance of the provisions of the contract and specifications.

For further information apply to State Highway Department of New Jersey.

By order of the State Highway Commission.
A. LEE GROVER, Chief Clerk.

Bids received until September 16, 1918.

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1-8 x 12 Mundy DCDD, with boiler.....	1,300
1-9 x 10 Lidgerwood, 3 drum, 32" drums, without boiler	1,900
With boiler	2,300
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With boiler	550
1-7 x 10 Lambert DCDD, with boiler.....	1,100

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1-12 x 12 Laidlaw-Dunn-Gordon, belt driven, capacity 300'	\$750
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2-14 x 12 Bury Duplex, belt driven, capacity about 550' at 60 to 80 lbs., each.....	1,000
1-14 x 16 x 10 x 16 Sullivan, 2 stage air, simple steam, capacity 600' at 80 to 100 lbs....	1,500
1-14 x 9 x 10 Bury, 2 stage, belt driven, capacity 350'	1,500
1-Ingersoll-Rand Imperial Type XB2, 500'..	2,000

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1-Monighan-Walker steam machine, with 50' boom, 1 1/2 yd. bucket, almost new....	\$7,000
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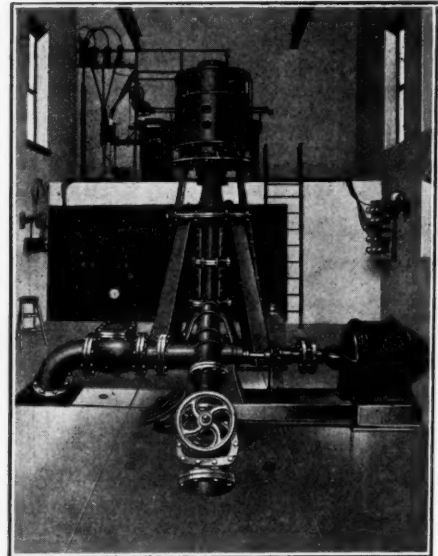
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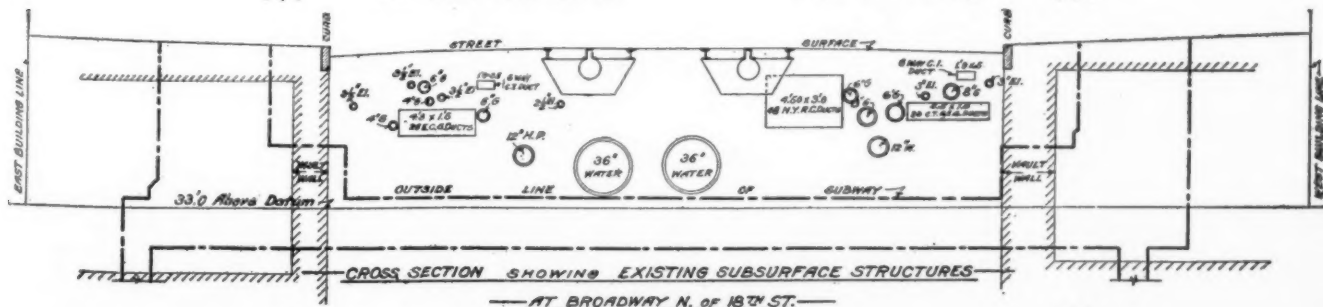
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